

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jon Weise

Serial No.: 10/020,744

Group Art Unit: 2837

Filed: October 30, 2001

Examiner: Edgardo San Martin

For: RETRACTABLE EAR
PROTECTION DEVICE

Atty. Doc. No.: 973-001

Honorable Commission of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313

APPEAL BRIEF

S I R:

In support of a Notice of Appeal filed August 25, 2004 regarding the subject application, Applicant respectfully submits this Appeal Brief.

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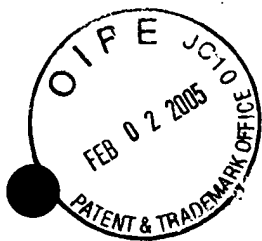


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- F. Japanese Patent Number JP 08237349 issued September 13, 1996 to Urawa from an application filed on February 22, 1995
- G. United States Patent Number 5,581,821 issued December 10, 1996 to Nakano from an application filed on June 26, 1995
- H. United States Patent Number 5,279,473 issued January 18, 1994 to Rozon from an application filed on May 1, 1992
- I. United States Patent Number 4,802,638 issued February 7, 1989 to Burger *et al.* from an application filed on July 29, 1987
- J. United States Patent Number 5,984,224 issued November 16, 1999 to Yang from an application filed on October 23, 1998
- K. *Orthopedic Equipment Co. v. United States*, 702 F.2d 1005, 217 USPQ 193 (Fed. Cir. 1983).
- L. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81 (Fed. Cir. 1986).
- M. *Sensonics v. Aerosonic Corp.*, 38 USPQ2d 1551, 1554 (1996).
- N. *ACS Hospital Systems Inc. v. Montefiore Hospital*, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984).

Appendix III: Related Proceedings

TABLE OF AUTHORITIES

CASES

1. *Orthopedic Equipment Co. v. United States*, 217 USPQ 193 (Fed. Cir. 1983).
2. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81 (Fed. Cir. 1986).
3. *Seasonics v. Aerosonic Corp.*, 38 USPQ2d 1551, 1554 (1996).
4. *ACS Hospital Systems Inc. v. Montefiore Hospital*, 221 USPQ 929 (Fed. Cir. 1984).

STATUTES

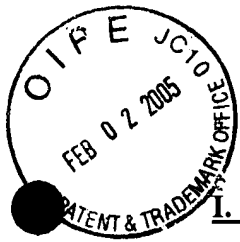
1. United States Code, Title 35, §103.
2. United States Code, Title 35, §112.

SECONDARY SOURCES

1. Code of Federal Regulations, Title 37, §1.116.
2. Manual of Patent Examining Procedure, 8th Edition, §§714.12-13.

CITED REFERENCES

1. United States Patent Number 4,802,638 issued February 7, 1989 to Burger *et al.* from an application filed on July 29, 1987.
2. United States Patent Number 5,279,473 issued January 18, 1994 to Rozon from an application filed on May 1, 1992.
3. United States Patent Number 5,581,821 issued December 10, 1996 to Nakano from an application filed on June 26, 1995.
4. United States Patent Number 5,984,224 issued November 16, 1999 to Yang from an application filed on October 23, 1998.
5. Japanese Patent Number JP 08237349 issued September 13, 1996 to Urawa from an application filed on February 22, 1995.



I. REAL PARTY IN INTEREST

The real party in interest in the subject appeal is Ward & Olivo, a law firm with a principal place of business at 382 Springfield Avenue, Suite 300, Summit, NJ 07901.

- 5 Ward & Olivo is the assignee of the entire interest of the subject application from the sole inventor, Mr. Jonathon Weise. The Assignment was made on August 1, 2003 and was recorded on September 9, 2003 with the United States Patent and Trademark Office. A complete microfilm copy can be viewed at reel number 014452, frame number 0509. A copy and accurate copy of the recorded Assignment is attached as Appendix II.A.

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II. RELATED APPEALS AND INTERFERENCES

5 The Assignee is unaware of any prior or, pending appeal, or any judicial or
interference proceeding which may directly affect, be related to, be directly affected by,
or have a bearing on the Board's decision in this proceeding.

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III. STATUS OF CLAIMS

5 The subject application, as originally filed on October 30, 2001 contained Claims
1-38, with Claims 1, 15, 24 and 28 being independent. In an Amendment filed
November 5, 2003, Claims 26 and 28 were canceled and Claims 39-43 were added.
Accordingly, Claims 1-25, 27, and 29-43 remain pending in the subject application and
stand finally rejected and/or objected to by the Examiner. In a Final Rejection dated
10 March 25, 2004, the Examiner objected to Claims 29-35 as being dependant upon
canceled Claim 28, but stated that these "claims would be consider[ed] being dependable
upon claim 24 for the sake of advancing the prosecution of the application." The
Examiner was correct in this assumption. As a result, these claims should be dependant
upon claim 24 for the sake of this Appeal. The Amendment and the Final Rejection are
15 attached as Appendices II.B and II.C, respectively. Applicants herein appeal the
Examiner's decision finally rejecting Claims 1-25, 27, and 29-38, and are withdrawing
Claims 39-43.

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IV. STATUS OF AMENDMENTS

In response to the Final Office Action dated March 25, 2004, Applicant filed an
5 Amendment on May 18, 2004. However, in an Advisory Action dated June 7, 2004, the
Examiner refused entry of the Amendment on the grounds that the Amendment (i) does
not “place the application in better form for appeal by materially reducing or simplifying
the issues for appeal,” and (ii) raises “new issues that would require further consideration
and/or a search.” The Advisory Action and Amendment are attached as Appendices II.D
10 and II.E, respectively.

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V. SUMMARY OF CLAIMED SUBJECT MATTER

Ear protection devices are well known. Typically, ear plugs or similar ear
5 protection devices are inserted into the aural canal of the ear to dampen sound waves.
This is important because prolonged exposure to excessively loud noises can damage the
ear, causing hearing loss. Because ear protection devices are necessarily small, they are
often lost. Consequently, storage systems for these have been developed. However,
these systems are often impractical, in that they are awkward to carry or unnecessarily
10 restrict the use of the ear protection devices.

The present invention has solved these problems. Specifically, the invention is
directed to a novel system for storing and using ear protection devices. As disclosed and
claimed, the present invention couples ear protection devices to an independently
retractable storage unit. Because each ear protection device is independent of the other
15 within the storage unit, a user, according to the preferred embodiment, may extend or
retract each ear protection device independent of the other. This is advantageous because
it provides a user with a vastly more adaptable, accessible and flexible ear protection
system. While many ear protection devices are known in the art, the prior art fails to
disclose such an independently operable ear protection system.

20 As currently pending, the present application contains Claims 1-25, 27, and 29-
38, of which Claims 1, 15, and 24 are independent. A reproduction of Claims 1-25, 27,
and 29-38 are reproduced in Appendix I.

The following briefly summarizes the claimed invention as set forth in each independent
claim. The disclosed corresponding structure for any means-plus-function elements are
25 also set forth below.

A. Independent Claim 1

A first embodiment of the claimed invention is set forth in Claim 1. As claimed, the invention is directed to an ear protection system including “a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal.” (Claim 1, lines 2-4). For example, such ear protection devices may include interchangeable earplugs of various sizes and materials. *See* Specification, page 10, lines 5-10; page 13, lines 5-10; page 17, lines 1-2; Figures 1, 2 and 4 element 108.

The system also includes “an encasement structure comprising at least an anterior member and posterior member, wherein said anterior chamber and said posterior chamber are coupled together.” Claim 1, lines 5-7. In short, the anterior and posterior members form the encasement structure of the apparatus, and for example, are coupled together with screws, although other means for attaching them may be used. *See* Specification, page 10, lines 21-25; pages 15 line 20 to page 16 line 3; Figures 1, 2, and 3 encasement structure 100, anterior member 101, posterior member 102 and screw 103.

The ear protection devices are preferably attached to the encasement structure by a non-elastic cord with one end attached to the ear protection device and the other end attached to one of “a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement structure.” Claim 1, lines 8-11. For example, the cord may be attached to a spool mounted in the encasement. The spool preferably rotates in one direction to extend the ear protection device away from the encasement and rotates in the other direction to retract the device toward the encasement. *See* Specification page 11, line 22 to page 16, lines 2; page 16, lines 9-22; Figures 1 and 2, encasement mounts 105 and spools 106. As

set forth in dependent claims, this retracting and extending means may also include a ratchet (page 17, lines 16-19; Figure 2 element 110), a spring-loaded locking mechanism (page 12, lines 3-8), a pushbutton (page 12, lines 14-18; page 17, lines 17-18 ; Figures 2 and 5, element 109), or a thumb slide (page 12, lines 19-24; Figure 6, element 601).

5 The ear protection system can be mounted onto a shirt, hat, etc. by the use of “a mounting means for removably mounting said encasement structure upon an entity...” Claim 1, lines 12-13. In general, the mounting means may be a clip, *see* specification, page 10, lines 17-20; page 11, line 7; Figure 3, element 302, and may be adapted so that it rotates 360 degrees. *See* specification, Page 11, line 6; page 18, lines 8-9.

10 Finally, the ear protection system operates in such a way that the each ear protection device can “operate... independently.” Claim 1, lines 15-16. *See* specification, page 16, lines 10-12. For example, each ear protection device is attached to its own elastic cord that is wound around its own spool located within the encasement. Each spool rotates within the encasement, allowing a user to expand and retract the ear
15 protection device. Since each spool operates independent of the other, a user is free to adjust the length of one ear protection device without altering the length of the other.

B. Independent Claim 15

Next, Claim 15 is directed to a method for ear protection. In order to protect the ears, an encasement structure of the type disclosed at page 10, lines 21-25; pages 15 line
20 20 to page 16 line 3; Figures 1, 2, and 3 encasement structure 100, anterior member 101, posterior member 102 and screw 103 is provided. Harmful sounds are blocked by the use of a “plurality of ear protection devices” (Claim 15, lines 6-8) which may include interchangeable earplugs of various sizes, shapes and materials. *See* specification, page

10, lines 5-10; page 13, lines 5-10; page 17, lines 1-2; Figures 1, 2 and 4 element 108.

The ear protection devices are secured to the encasement via a non-elastic cord, with one end attached to the ear protection device, and the other end attached to a spool within the encasement.

5 The second step of the method entails blocking sound waves. In order to block the sound waves and protect the ear, at least one of the ear protection devices must be “selectively retracted by an independent retraction means.” Claim 15, lines 9-12. . For example, the cord may be attached to a spool mounted in the encasement. The spool preferably rotates in one direction to extend the ear protection device away from the
10 encasement and rotates in the other direction to retract the device toward the encasement. *See* Specification page 11, line 22 to page 16, lines 2; page 16, lines 9-22; Figures 1 and 2, encasement mounts 105 and spools 106. As set forth in dependent claims, this retracting and extending means may also include a ratchet (page 17, lines 16-19; Figure 2 element 110), a spring-loaded locking mechanism (page 12, lines 3-8), a pushbutton
15 (page 12, lines 14-18; page 17, lines 17-18 ; Figures 2 and 5, element 109), or a thumb slide (page 12, lines 19-24; Figure 6, element 601).

Next, the retracted ear device is “securely stowed” adjacent to the encasement structure. Claim 15. For example, a spool and cord mounted thereto may function in this manner, by rotating in one direction to extend the ear protection device and rotates in the
20 other direction to retract the device. *See* specification, page 11, line 22 to page 16, lines 2; page 16, lines 9-22; Figures 1 and 2, encasement mounts 105 and spools 106.

The final step of Claim 15 is accomplished by mounting the encasement structure upon a convenient placement structure. Claim 15, lines 15-16. For example, the ear

protection system can be mounted onto a shirt, hat, etc. by the use of “a mounting means for removably mounting said encasement structure upon an entity...” Claim 1, lines 12-13. Preferably, the mounting means is a clip but may be any other known type of means for mounting. *See* specification, page 10, lines 17-20; page 11, line 7; Figure 3, element 5 302.

C. Independent Claim 24

A third embodiment of the claimed invention is set forth in Claim 24. As claimed, the invention is directed at an ear protection system including “a plurality of ear protection devices.” Claim 34, line 2. For example, such ear protection devices may 10 include interchangeable earplugs of various sizes and materials. *See* Specification, page 10, lines 5-10; page 13, lines 5-10; page 17, lines 1-2; Figures 1, 2 and 4 element 108.

The second element of the ear protection system is “an encasement structure...wherein said encasement structure is coupled to said ear protection device.” Claim 24, lines 5-8. In short, the anterior and posterior members form the encasement 15 structure of the apparatus, and for example, are coupled together with screws, although other means for attaching them may be used. *See* Specification, page 10, lines 21-25; pages 15 line 20 to page 16 line 3; Figures 1, 2, and 3 encasement structure 100, anterior member 101, posterior member 102 and screw 103.

The ear protection devices are preferably attached to the encasement structure by 20 a non-elastic cord with one end attached to the ear protection device and the other end attached to one of “a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement structure.” Claim 1, lines 8-11. For example, the cord may be attached to a

spool mounted in the encasement. The spool preferably rotates in one direction to extend the ear protection device away from the encasement and rotates in the other direction to retract the device toward the encasement. *See* Specification page 11, line 22 to page 16, lines 2; page 16, lines 9-22; Figures 1 and 2, encasement mounts 105 and spools 106.

5 The third element of the claim requires a mounting means. Claim 24, line 9. The ear protection system can be mounted onto a shirt, hat, etc. by the use of “a mounting means for removably mounting said encasement structure upon an entity...” Claim 1, lines 12-13. In general, the mounting means may be a clip, *see* specification, page 10, lines 17-20; page 11, line 7; Figure 3, element 302, and may be adapted so that it rotates
10 360 degrees. *See* specification, Page 11, line 6; page 18, lines 8-9.

 The fourth element of the ear protection system requires that the ear protection devices are coupled to the encasement by a plurality of retraction means for selectively retracting the ear protection devices. Claim 24, lines 12-15. For example, the cord may be attached to a spool mounted in the encasement. The spool preferably rotates in one
15 direction to extend the ear protection device away from the encasement and rotates in the other direction to retract the device toward the encasement. *See* specification page 11, line 22 to page 16, lines 2; page 16, lines 9-22; Figures 1 and 2, encasement mounts 105 and spools 106. As set forth in dependent claims, this retracting and extending means may also include a ratchet (page 17, lines 16-19; Figure 2 element 110), a spring-loaded
20 locking mechanism (page 12, lines 3-8), a pushbutton (page 12, lines 14-18; page 17, lines 17-18 ; Figures 2 and 5, element 109), or a thumb slide (page 12, lines 19-24; Figure 6, element 601).

The final element of the ear protection device is that the retraction means operate independently of each other. Claim 24, line 16-17. *See* page 11, lines 17-19. For example, each ear protection device is attached to a non elastic cord. Each cord is then wound around a spool located within the encasement. The spool freely rotates within the encasement, allowing a user to expand and retract the ear protection device. Since each spool operates separately, a user is free to adjust the length of one ear protection device without altering the length of the other.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner's final rejection of the pending claims as set forth in the Final Rejection dated March 25, 2004, and an Advisory Action dated June 7, 2004 (attached as
5 Appendices II.C and II.D, respectively) are as follows:

A. 35 U.S.C. § 103 (Claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34-35, 37 and 40)

10 The Examiner rejected claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34-35, 37, and 40 under 35 U.S.C. § 103(a) as being unpatentable over Urawa JP 08237349 ("Urawa") (Appendix II.F) in view of Nakano U.S. Patent No. 5,581,821 ("Nakano") (Appendix II.G). In the opinion of the Examiner Urawa discloses the claimed invention except that "Urawa fails to teach a plurality of ear protection devices instead of the
15 earphone and connector devices." (Final Rejection, paragraph 5). The Examiner argued that it would be obvious "to employ the Nakano earplugs with the Urawa independently operable retractions means because the teachings combination would result in a system of independently retractable earplugs, in which, each of the ear plugs could be controlled to extend to a desire [sic] length depending on the need, and wherein only one of the
20 earplugs could be used if that is the need." (Final Rejection, ¶ 5).

B. 35 U.S.C. § 103 (Claims 6, 10, 21, 33 and 36)

Next, the Examiner rejected Claims 6, 10, 21, 33 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Urawa in view of Nakano, in further view of Rozon U.S.
25 Patent No. 5,279,473 ("Rozon") (Appendix II.H). The Examiner stated that Urawa and Nakano disclose the claimed invention as discussed above, "but fail to disclose wherein

the encasement structure is constructed of plastic, and wherein the spring loaded locking mechanism comprises a thumb slide.” (Final Rejection, ¶ 6). The Examiner argued that it would have been obvious to employ the “Rozon configuration with the Urawa and Nakano design because the thumb slide is easy to use and provide [sic] a good
5 ergonomically fit actuator for a user to use, and the plastic encasement structure would provide an economical and light-weight structure that would be easy to carry by and [sic] user and low cost to produce.” (Final Rejection, ¶ 6).

C. 35 U.S.C. § 103 (Claims 14 and 38)

10 Finally, the Examiner rejected Claims 14 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Urawa in view of Nakano, further in view of Burger et al. U.S. Patent No. 4,802,638 (“Burger”) (Appendix II.I). Here, the Examiner argued that Nakano discloses the claimed invention except for “wherein the clip-on means is rotatable.” (Final Rejection, ¶ 7). According to the Examiner, it would have been obvious
15 “to employ the Burger et al. rotatable clip-on with the Urawa and Nakano design because it would provide a certain degree of movement that would prevent the cord from getting tangle [sic] with the surface of the encasement structure.” (Final Rejection, ¶ 7).

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VII. ARGUMENT

A. The Examiner's Rejections Should Be Withdrawn Because There Is No Motivation To Combine The Cited References

5 An obviousness rejection is improper unless the prior art relied upon suggests such a combination. *See In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Indeed, the Examiner "has the burden to show some teaching or suggestion in the
10 references to support their use in the particular claimed combination." *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.*, 859 F.2d 878, 887, 8 USPQ2d 1468, 1475 (Fed. Cir. 1988); *see also, In re Mayne*, 104 F.3d 1339, 1342, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997) ("When relying on numerous references or a modification of prior art, it is incumbent upon the examiner to identify some suggestion to combine references
15 of make modification."). A finding of obviousness is not warranted if, as in the present case, there is an absence of such teaching, suggestion or motivation. *See Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997). The prior art references relied upon by the Examiner fail to provide any teaching, suggestion or motivation for the combination asserted by the Examiner in rejecting the
20 pending claims. It is well settled that:

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so." *ACS Hospital Systems Inc. v. Montefiore
25 Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

Specifically, the Applicant respectfully submits that there is no motivation for the combination of Urawa in view of Nakano. According to MPEP §2143.01, the fact that a claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness. Indeed, “a statement that
5 modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references.” MPEP §2143.01; *see also*
10 *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App & Inter. 1993).

In the Final Rejection dated March 25, 2004, the Examiner stated, with respect to the combination of Urawa and Nakano “[i]t would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Nakano earplugs with the Urawa independently operable retraction means because the teachings
15 combination would result in a system of independently retractable earplugs, in which each of the earplugs could be controlled to extend to a desired length depending on the need.” Final Office Action, ¶ 5. In short, the Examiner stated that it would have been obvious because the references, when combined, teach the invention as claimed. However, there is no objective reason to combine the references, nor has the Examiner proffered one.
20 Therefore, combining these references is improper and the rejection of the Claims should be withdrawn.

The Applicant acknowledges the Examiner’s reliance on Rozon as disclosing a cord retraction device. However, the Applicant respectfully submits that the combination

of Urawa in view of Nakano with Rozon is improper. Rozon discloses a cord retraction device specifically adapted for use with window blinds. Indeed, window blinds are a vastly different technology than ear protection systems. Moreover, Applicant respectfully submits that there is no motivation in the references themselves for the combining Urawa, 5 Nakano, and Rozon as relates to the present invention. The invention of Rozon teaches the reversible taking up of slack in cord, specifically for a pair of free-ended cords found in Venetian blinds or a cord loop found in a vertical blind. In fact, Rozon acknowledges that many retraction devices already exist, but none that are effectively adapted to the requirements of window blind cord retraction devices. Col. 1, lns. 31-35. None of this 10 even remotely suggests that one of ordinary skill would combine window blind technology with the ear plug of Rozon or ear phone technology of Urawa and/or Nakano.

The cited references provide no such motivation or incentive for the combination suggested by the Examiner. Therefore, the obviousness rejection could only be the result of a hindsight view with the benefit of Applicant's specifications. This type of analysis is 15 inappropriate:

20 "To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction -- an illogical and inappropriate process by which to determine patentability. The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made." *Seasonics v. Aerosonic Corp.* 38 USPQ 2d 1551, 1554 (1996) (citations omitted).

25 In addition, the combination advanced by the Examiner is not legally proper -- on reconsideration the Examiner will undoubtedly recognize that such a position is merely an "obvious to try" argument.

The disclosure in Rozon's specification and claims does not reveal functional or design choices that could possibly include that of Applicant's invention. Furthermore, the structure of the design disclosed in Nakano's specification and claims could not possibly allow for that of Applicant's invention. Accordingly, it is not obvious to combine these patents in any combination to arrive at the present invention. At best, it might be obvious to *try* such a modification, but of course, "obvious to try" is not the standard for obviousness under 35 U.S.C. § 103. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 91 (Fed. Cir. 1986).

Under the circumstances, Applicant respectfully submits that the Examiner has succumbed to the "strong temptation to rely on hindsight." *Orthopedic Equipment Co. v. United States*, 702 F.2d 1005, 1012, 217 USPQ 193, 199 (Fed. Cir. 1983):

"It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claim in suit. Monday morning quarter backing is quite improper when resolving the question of non-obviousness in a court of law." *Id.*

Applicant submits that the only "motivation" for the Examiner's combination of the references is provided by the teachings of Applicant's own disclosure. No such motivation is provided by the reference itself.

Thus, the present invention, for the first time, discloses novel methods and apparatus for ear protection and stowage to allow for comfort, easy accessibility, flexibility, and applicability to any type of environment. This represents a vast improvement over the prior art, and is not taught or disclosed anywhere in the prior art. Further, the cited references neither teach nor suggest the novel and nonobvious features of this invention.

Therefore, the combination of Urawa, Nakano and Rozon is not proper and the rejection of Claims 6, 10, 21, 33 and 36 should be withdrawn.

5 **B. The Examiner's Rejections Should Be Withdrawn
Because The References, Either Alone Or In
Combination, Do Not Teach ach And Every Claim
Limitation**

10 1. **The Rejection Of Claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-
32, 34-35, 37, And 40 Should Be Withdrawn Because The
Combination Of Urawa And Nakano Fails To Teach
Independently Operable Ear Protection Devices**

Even if the Examiners combination of the cited references was proper, the cited
15 references do not teach the Applicant's claimed invention. The Examiner rejected
Claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34-35, 37 and 40 under 35 U.S.C.
§103(a) as being unpatentable over Urawa in view of Nakano. Briefly, Urawa discloses
an earphone and connector device in which the earphone wire is maintained on a spool
allowing the wire to be selectively extended or retracted to certain lengths. In the opinion
20 of the Examiner, Urawa discloses a "...plurality of retraction means operates the
earphone and connector devices independently (Fig.3; Abstract)" Final Rejection, ¶5.

The Applicant respectfully disagrees. The Examiner's attention is drawn to
element 3 of Figure 3 of Urawa, which designates the single cord connecting earphone 31
and plug 32. As disclosed, the earphone 31 and plug 32 are connected by a single cord 3
25 and therefore necessarily cannot be independent of one another. Rather, it is clear from
the disclosure in Urawa that the extension/retraction of earphone 31 is dependent upon
the extension/retraction of plug 32. Indeed, earphone 31 can only extend to the extent
that plug 32 has not been extended, and vice versa. This is readily apparent from Fig. 3;
nothing in Urawa suggests otherwise.

Turning next to Nakano, disclosed is an ear protection device for attachment to a construction helmet. The invention specifically relates to ear protectors designed to be readily accessible for use by a workman. Specifically, Nakano discloses:

5 “a reelable ear plug assembly detachably carried on a helmet 11, such as is used by a construction worker. The helmet may be referred to as a construction helmet and the assembly is carried on a housing 12 which may be attached to the rear of the helmet, as shown, such as with adhesive or by a releasable clamp, or, if desired, the housing may be detachably connected to a brim or visor 13 formed with the crown of the helmet 11.”
10 Col. 2, lns. 54-61

The device in Nakano consists of a single retraction means which requires both the left and right ear protection devices to extend and retract together at all times. They are not independent of one another. For example, if a user wishes to use a cell phone in
15 a noisy environment, the user may wish to only use the ear protection device in one ear while keeping the plug for the other ear stored in a stowage device. The device according to Nakano cannot do this (i.e., the unused ear plug will dangle from the stowage device). Thus, even the broadest reading of Nakano would require that both ear protection devices be extended or retracted together, at equal lengths. Figures 2, 3, and 4 Elements 15, 17,
20 18, and 20; Col. 1, lns. 51-55; col. 2, ln. 64; and Figure 3, elements 18 and 20.

Currently pending Claims 1 and 24 particularly highlight the distinction from the cited references. Specifically, these claims read:

1. (PREVIOUSLY PRESENTED) An ear protection system consisting of:
25 a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal,
 an encasement structure comprising at least an anterior member and posterior member, wherein said anterior member and said posterior member are coupled together;
 a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement
30 structure; and
 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of retraction means operates said plurality of ear protection devices **independently**. (Emphasis added).

24. (PREVIOUSLY PRESENTED) An ear protection system consisting of:

5 a plurality of ear protection devices for preventing the penetration of harmful and disturbing sounds into the ear canal,

an encasement structure comprising at least two members, wherein said members are coupled together;

further, wherein said encasement structure is coupled to said ear protection device; and

10 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of ear protection devices are coupled to said encasement means by a plurality of retraction means for selectively retracting said plurality of ear protection devices toward said encasement structure;

15 wherein said plurality of retraction means operate said plurality of ear protection devices **independently**. (Emphasis added).

As demonstrated above, the combination of Urawa and Nakano does not disclose each and every element of the invention because such a combination still would not allow

20 for the independent operation of the ear protection devices. Accordingly, the Examiner's rejection of claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34-35, 37 and 40 under 35 U.S.C. §103(a) should be withdrawn.

25 **2. The Rejection Of Claims 6, 10, 21, 33, And 36 Should Be Withdrawn Because The Combination Of Urawa And Nakano In View Of Rozon Also Fails To Teach Independently Operable Ear Protection Devices**

Next, the Examiner rejected dependent claims 6, 10, 21, 33 and 36 under 35 U.S.C. §103(a) as being unpatentable over Urawa in view of Nakano as discussed above

30 and in further view of Rozon. As stated above, the combination of Urawa and Nakano fails to teach every element of the invention as claimed. Similarly, the additional combination of Rozon with Urawa and Nakano also fails to teach all of the elements of Applicant's claimed ear protection system. Indeed, Rozon does not teach or suggest to

invention as claimed. Therefore the rejection of claims 14 and 38 under 35 U.S.C.
§103(a) should be withdrawn.

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APPENDIX I: CLAIMS

1. (PREVIOUSLY PRESENTED) An ear protection system consisting of:

5 a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal,

 an encasement structure comprising at least an anterior member and posterior member, wherein said anterior member and said posterior member are coupled together;

 a plurality of retraction means disposed within said encasement structure for
10 selectively retracting said plurality of ear protection devices toward said encasement structure; and

 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

 wherein said plurality of retraction means operates said plurality of ear protection
15 devices independently.

2. (ORIGINAL) An ear protection system according to claim 1, wherein said plurality of ear protection devices comprise earplugs.

20 3. (ORIGINAL) An ear protection system according to claim 2, wherein said earplugs are removably coupled to said retraction means.

 4. (PREVIOUSLY PRESENTED) An ear protection system according to claim 1, wherein said plurality of ear protection devices are independently removable and coupled
25 to said retraction means.

5. (ORIGINAL) An ear protection system according to claim 1, wherein the interior of said encasement structure comprises protruding axes perpendicular to said anterior member.

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6. (ORIGINAL) An ear protection system according to claim 1, wherein said encasement structure is constructed of plastic.

7. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction
10 means comprises a cord for coupling said plurality of ear protection devices to said encasement structure.

8. (ORIGINAL) An ear protection system according to claim 7, wherein said retraction means comprises spools for mounting said cord.

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9. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction means comprises a spring loaded locking mechanism for securing the extension of said plurality of ear protection devices.

20 10. (ORIGINAL) An ear protection system according to claim 9, wherein said spring loaded locking mechanism comprises a thumb slide.

11. (ORIGINAL) An ear protection system according to claim 9, wherein said spring loaded locking mechanism comprises a push button.

12. (ORIGINAL) An ear protection system according to claim 9, wherein said spring-
5 loaded locking mechanism comprises a ratchet.

13. (ORIGINAL) An ear protection system according to claim 1, wherein said mounting means comprises a clip-on means.

10 14. (ORIGINAL) An ear protection system according to claim 13, wherein said clip-on means is rotatable.

15

20

15. (PREVIOUSLY PRESENTED) A method of ear protection consisting of the steps of:

providing an encasement structure comprising at least an anterior member and posterior member, wherein said anterior member and said posterior member are
5 removably coupled together;

preventing the penetration of harmful or disturbing sounds into the ear canal by providing a plurality of ear protection devices;

selectively retracting at least one of said plurality of ear protection devices, wherein said selectively retracting is executed by at least one of a plurality of
10 independent retraction means;

securely stowing said plurality of ear protection devices adjacent to said encasement structure; and

mounting said encasement structure upon an entity for convenient placement of said encasement structure with removable mounting means.

15

16. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15, wherein said ear protection devices are independently removable and coupled to said retraction means.

20 17. (ORIGINAL) A method of ear protection according to claim 15, wherein the interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said anterior member.

18. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools.

19. (ORIGINAL) A method of ear protection according to claim 15, wherein said
5 retraction means comprises a cord mounted on spools; and wherein said interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said posterior member; further wherein said spools are mounted on said protruding axes of said encasement structure.

10 20. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15, wherein said retracting step comprises securing each of the extensions of said plurality of ear protection devices by a spring loaded locking mechanism.

21. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-
15 loaded locking mechanism comprises a thumb slide.

22. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-
loaded locking mechanism comprises a push button.

20 23. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-
loaded locking mechanism comprises a ratchet.

24. (PREVIOUSLY PRESENTED) An ear protection system consisting of:

a plurality of ear protection devices for preventing the penetration of harmful and disturbing sounds into the ear canal,

an encasement structure comprising at least two members, wherein said members are coupled together;

5 further, wherein said encasement structure is coupled to said ear protection device; and

a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of ear protection devices are coupled to said encasement means by a plurality of retraction means for selectively retracting said plurality of ear protection devices toward said encasement structure; and

10 wherein said plurality of retraction means operate said plurality of ear protection devices independently.

25. (ORIGINAL) An ear protection system according to claim 24, wherein said ear protection devices comprise earplugs.

26. (CANCELLED)

27. (PREVIOUSLY PRESENTED) An ear protection system according to claim 24, wherein said plurality of ear protection devices are independently removable and coupled to said encasement structure.

28. (CANCELLED)

29. (PREVIOUSLY PRESENTED) An ear protection device according to claim 28, wherein said plurality of ear protection devices are independently removable and coupled to said plurality of retraction means.

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30. (PREVIOUSLY PRESENTED) An ear protection system according to claim 28, wherein each of said plurality of retraction means comprises a cord for independently coupling each of said plurality of ear protection devices to said encasement structure.

10 31. (ORIGINAL) An ear protection system according to claim 30, wherein said retraction means comprises spools for mounting said cord.

32. (ORIGINAL) An ear protection system according to claim 28, wherein said retraction means comprises a spring-loaded locking mechanism for securing the
15 extension of said plurality of ear protection devices.

33. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a thumb slide.

20 34. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a push button.

35. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a ratchet.

36. (ORIGINAL) An ear protection system according to claim 24, wherein said
5 encasement structure is constructed of plastic.

37. (ORIGINAL) An ear protection system according to claim 24, wherein said mounting means comprises a clip-on means.

10 38. (ORIGINAL) An ear protection system according to claim 37, wherein said clip-on means is rotatable.

39-43. (CANCELLED)

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APPENDIX I: CLAIMS

5 1. (PREVIOUSLY PRESENTED) An ear protection system consisting of:

a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal,

an encasement structure comprising at least an anterior member and posterior member, wherein said anterior member and said posterior member are coupled together;

10 a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement structure; and

a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

15 wherein said plurality of retraction means operates said plurality of ear protection devices independently.

2. (ORIGINAL) An ear protection system according to claim 1, wherein said plurality of ear protection devices comprise earplugs.

20

3. (ORIGINAL) An ear protection system according to claim 2, wherein said earplugs are removably coupled to said retraction means.

4. (PREVIOUSLY PRESENTED) An ear protection system according to claim 1, wherein said plurality of ear protection devices are independently removable and coupled to said retraction means.

5 5. (ORIGINAL) An ear protection system according to claim 1, wherein the interior of said encasement structure comprises protruding axes perpendicular to said anterior member.

6. (ORIGINAL) An ear protection system according to claim 1, wherein said encasement
10 structure is constructed of plastic.

7. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction means comprises a cord for coupling said plurality of ear protection devices to said encasement structure.

15

8. (ORIGINAL) An ear protection system according to claim 7, wherein said retraction means comprises spools for mounting said cord.

9. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction
20 means comprises a spring loaded locking mechanism for securing the extension of said plurality of ear protection devices.

10. (ORIGINAL) An ear protection system according to claim 9, wherein said spring loaded locking mechanism comprises a thumb slide.

11. (ORIGINAL) An ear protection system according to claim 9, wherein said spring loaded locking mechanism comprises a push button.

12. (ORIGINAL) An ear protection system according to claim 9, wherein said spring-loaded locking mechanism comprises a ratchet.

13. (ORIGINAL) An ear protection system according to claim 1, wherein said mounting means comprises a clip-on means.

14. (ORIGINAL) An ear protection system according to claim 13, wherein said clip-on means is rotatable.

15

20

15. (PREVIOUSLY PRESENTED) A method of ear protection consisting of the steps
5 of:

providing an encasement structure comprising at least an anterior member and
posterior member, wherein said anterior member and said posterior member are
removably coupled together;

preventing the penetration of harmful or disturbing sounds into the ear canal by
10 providing a plurality of ear protection devices;

selectively retracting at least one of said plurality of ear protection devices,
wherein said selectively retracting is executed by at least one of a plurality of
independent retraction means;

securely stowing said plurality of ear protection devices adjacent to said
15 encasement structure; and

mounting said encasement structure upon an entity for convenient placement of
said encasement structure with removable mounting means.

16. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15,
20 wherein said ear protection devices are independently removable and coupled to said
retraction means.

17. (ORIGINAL) A method of ear protection according to claim 15, wherein the interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said anterior member.

5 18. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools.

19. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools; and wherein said interior of said
10 encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said posterior member; further wherein said spools are mounted on said protruding axes of said encasement structure.

20. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15,
15 wherein said retracting step comprises securing each of the extensions of said plurality of ear protection devices by a spring loaded locking mechanism.

21. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-loaded locking mechanism comprises a thumb slide.

20

22. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-loaded locking mechanism comprises a push button.

23. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-loaded locking mechanism comprises a ratchet.

24. (PREVIOUSLY PRESENTED) An ear protection system consisting of:

5 a plurality of ear protection devices for preventing the penetration of harmful and disturbing sounds into the ear canal,

 an encasement structure comprising at least two members, wherein said members are coupled together;

 further, wherein said encasement structure is coupled to said ear protection device; and

10 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

 wherein said plurality of ear protection devices are coupled to said encasement means by a plurality of retraction means for selectively retracting said plurality of ear protection devices toward said encasement structure; and

15 wherein said plurality of retraction means operate said plurality of ear protection devices independently.

25. (ORIGINAL) An ear protection system according to claim 24, wherein said ear protection devices comprise earplugs.

20

26. (CANCELLED)

27. (PREVIOUSLY PRESENTED) An ear protection system according to claim 24, wherein said plurality of ear protection devices are independently removable and coupled to said encasement structure.

5 28. (CANCELLED)

29. (PREVIOUSLY PRESENTED) An ear protection device according to claim 28, wherein said plurality of ear protection devices are independently removable and coupled to said plurality of retraction means.

10

30. (PREVIOUSLY PRESENTED) An ear protection system according to claim 28, wherein each of said plurality of retraction means comprises a cord for independently coupling each of said plurality of ear protection devices to said encasement structure.

15 31. (ORIGINAL) An ear protection system according to claim 30, wherein said retraction means comprises spools for mounting said cord.

32. (ORIGINAL) An ear protection system according to claim 28, wherein said retraction means comprises a spring-loaded locking mechanism for securing the
20 extension of said plurality of ear protection devices.

33. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a thumb slide.

34. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a push button.

5 35. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a ratchet.

36. (ORIGINAL) An ear protection system according to claim 24, wherein said encasement structure is constructed of plastic.

10

37. (ORIGINAL) An ear protection system according to claim 24, wherein said mounting means comprises a clip-on means.

38. (ORIGINAL) An ear protection system according to claim 37, wherein said clip-on
15 means is rotatable.

39-43. (CANCELLED)

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APPENDIX II: EVIDENCE

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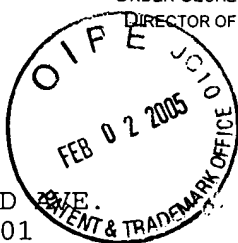


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MARCH 29, 2004

WARD & OLIVO
MICHAEL ZINNA
382 SPRINGFIELD AVE.
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REEL/FRAME: 014452/0509

NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

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WEISE, JONATHON

DOC DATE: 08/01/2003

ASSIGNEE:

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SERIAL NUMBER: 10020744

FILING DATE: 10/30/2001

PATENT NUMBER:

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4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: _____

A. Patent Application No.(s)

10/020,744

B. Patent No.(s)

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5. Name and address of party to whom correspondence concerning document should be mailed:

Name: MICHAEL ZINNA

Internal Address: _____

Street Address: WARD + OLIVO,

382 SPRINGFIELD AVE.

City: SUMMIT State: NJ Zip: 07901

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ASSIGNMENT

WHEREAS, I, JONATHON R. WEISE, ASSIGNOR, citizen of the United States, residing at 207 EAST 4TH AVENUE, ROSELLE, NEW JERSEY 07203-1335 am the inventor of the invention RETRACTABLE EAR PROTECTION DEVICE for which I intend to or have executed an application for a Patent of the United States

which is identified by Ward & Olivo docket no. 973-001 and
which was filed on OCTOBER 30, 2001, as application serial no. 10/020,744

and WHEREAS, WARD & OLIVO, a partnership, having its principle place of business at 382 SPRINGFIELD AVENUE, SUMMIT, NEW JERSEY, 07901, ASSIGNEE is desirous of obtaining the entire right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of \$3,822.00 to me in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, I, the said ASSIGNOR, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

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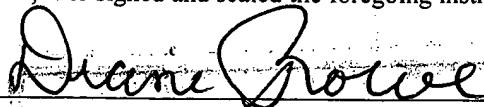
AND I HEREBY further covenant and agree that I will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known to me respecting said design, and testify in any legal proceeding provided ASSIGNEE shall pay me all reasonable costs and expenses associated therewith, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper protection for said design in all countries.

IN TESTIMONY WHEREOF, I hereunto set my hand and seal the day and year set opposite my signature.

Date 8-1-03, 2003 _____ L.S.

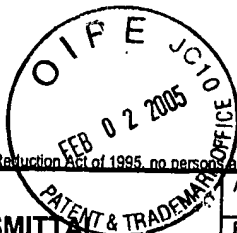
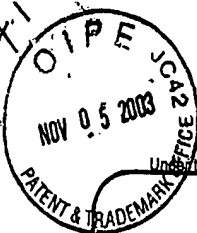
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) SS.:
County of Union)

On this 1 day of August, 2003, before me, a Notary Public in and for the State and County aforesaid, personally appeared Jonathon Weise
to me known and known to me to be the person of that name, who signed and sealed the foregoing instrument, and he acknowledged the same to be his free act and deed.



DIANE ROWE
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires June 21, 2006

Notary Public.



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		Filing Date	October 30, 2001
		First Named Inventor	Jon Weise
		Art Unit	2837
		Examiner Name	Edgardo San Martin
Total Number of Pages in This Submission	37	Attorney Docket Number	973-001

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PATENT & TRADE

PTO/SB/17 (10-03)

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 210.00

Complete if Known

Application Number	10/020,744
Filing Date	October 30, 2001
First Named Inventor	Jon Weise
Examiner Name	Edgardo San Martin
Art Unit	2837
Attorney Docket No.	973-001

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number	
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The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1) (\$)			

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		-20** =		X		=	
Independent Claims		-3** =		X		=	
Multiple Dependent						=	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 290	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2) (\$)			

**or number previously paid, if greater, For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 210.00

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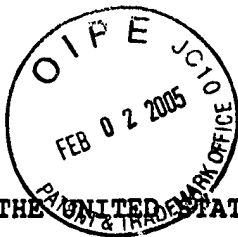
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Name (Print/Type)	JOHN W. OLIVO, JR.	Registration No. (Attorney/Agent)	35634	Telephone	
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PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jon Weise

Serial No.: 10/020,744

Group Art Unit: 2837

Filed: October 30, 2001

Examiner: Edgardo San Martin

For: Retractable Ear
Protection Device

Atty. Doc. No.: 973-001

Honorable Commission of Patents and Trademarks
Washington, DC. 20231

10

RESPONSE TO OFFICE ACTION

S I R:

In response to the June 3, 2003 Office Action in the
above mentioned case, Applicant respectfully requests
reconsideration in view of the following amendments and
15 remarks.

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IN THE SPECIFICATION

Please amend the specification as follows.

--On page 18, line 5 after "upper section" replace "304"
5 with --305--.

--On page 18, line 6, after "lower section" replace "305"
with --304--.

10 Please delete the Abstract and insert the following new
Abstract:

The invention disclosed provides an improved ear
protection system comprising an ear protection device and
an innovative stowage device. The stowage device is
15 capable of inconspicuously securing the ear protection
device to an easily accessible entity such as an article of
clothing. The system is further able to accommodate
various sizes and shapes of ear protection devices at
varying distances and lengths from the user's ear.
20 Additionally incorporated in the ear protection system is a
locking mechanism to control the extension and retraction
of the ear protection device from the stowage device.

On page 15, line 5, please add the following two sentences:

"FIG. 5 depicts a detailed view of the pushbutton of the preferred embodiment of the present invention."

"FIG. 6 depicts an alternative embodiment of the present invention incorporating a thumbslide instead of a pushbutton."

On page 17, line 16, please add the following sentences:

"A ratchet 110 prevents the spools from rotating in the reverse direction. Additionally shown is pushbutton 109 which operates to lock the position of the spool. Each spool may have its own pushbutton as illustrated. A more detailed view of pushbutton 109 is shown in FIG. 5."

On page 18, line 22, please insert the following paragraph:

"FIG. 6 depicts an alternative embodiment of the present invention incorporating thumbslide 601 in place of a pushbutton. Thumbslide 601 operates in a similar manner to pushbutton 109, preventing motion of the spool when moved to one side. The spool is released when thumbslide 601 is moved to the opposing side."

IN THE CLAIMS

Please amend the claims as follows.

--1. (CURRENTLY AMENDED) An ear protection system

5 ~~comprising~~ consisting of:

a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal,

an encasement structure comprising at least an
10 anterior member and posterior member, wherein said anterior member and said posterior member are coupled together;

a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement
15 structure; and

a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of retraction means operates
20 said plurality of ear protection devices independently.

--2. (ORIGINAL) An ear protection system according to claim 1, wherein said plurality of ear protection devices comprise earplugs.

--3. (ORIGINAL) An ear protection system according to claim 2, wherein said earplugs are removably coupled to said retraction means.

5

--4. (CURRENTLY AMENDED) An ear protection system according to claim 1, wherein said plurality of ear protection devices are independently ~~removably~~ removable and coupled to said retraction means.

10

--5. (ORIGINAL) An ear protection system according to claim 1, wherein the interior of said encasement structure comprises protruding axes perpendicular to said anterior member.

15

--6. (ORIGINAL) An ear protection system according to claim 1, wherein said encasement structure is constructed of plastic.

20 --7. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction means comprises a cord for coupling said plurality of ear protection devices to said encasement structure.

--8. (ORIGINAL) An ear protection system according to claim 7, wherein said retraction means comprises spools for mounting said cord.

5 --9. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction means comprises a spring loaded locking mechanism for securing the extension of said plurality of ear protection devices.

10 --10. (ORIGINAL) An ear protection system according to claim 9, wherein said spring loaded locking mechanism comprises a thumb slide.

--11. (ORIGINAL) An ear protection system according to
15 claim 9, wherein said spring loaded locking mechanism comprises a push button.

--12. (ORIGINAL) An ear protection system according to
claim 9, wherein said spring-loaded locking mechanism
20 comprises a ratchet.

--13. (ORIGINAL) An ear protection system according to claim 1, wherein said mounting means comprises a clip-on means.

--14. (ORIGINAL) An ear protection system according to claim 13, wherein said clip-on means is rotatable.

5 --15. (CURRENTLY AMENDED) A method of ear protection ~~comprising~~ consisting of the steps of:

providing an encasement structure comprising at least an anterior member and posterior member, wherein said anterior member and said posterior member are removably
10 coupled together;

preventing the penetration of harmful or disturbing sounds into the ear canal by providing a plurality of ear protection devices;

selectively retracting at least one of said plurality
15 of ear protection devices, wherein said selectively retracting is executed by at least one of a plurality of independent retraction means;

securely stowing said plurality of ear protection devices adjacent to said encasement structure; and
20 mounting said encasement structure upon an entity for convenient placement of said encasement structure with removable mounting means.

--16. (CURRENTLY AMENDED) A method of ear protection according to claim 15, wherein said ear protection devices are independently ~~removably~~ removable and coupled to said retraction means.

5

--17. (ORIGINAL) A method of ear protection according to claim 15, wherein the interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said anterior member.

10

--18. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools.

15 --19. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools; and wherein said interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said posterior
20 member; further wherein said spools are mounted on said protruding axes of said encasement structure.

--20. (CURRENTLY AMENDED) A method of ear protection according to claim 15, wherein said retracting step

comprises securing each of the extensions of said plurality of ear protection devices by a spring loaded locking mechanism.

5 --21. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-loaded locking mechanism comprises a thumb slide.

--22. (ORIGINAL) A method of ear protection according to
10 claim 20, wherein said spring-loaded locking mechanism comprises a push button.

--23. (ORIGINAL) A method of ear protection according to
claim 20, wherein said spring-loaded locking mechanism
15 comprises a ratchet.

--24. (CURRENTLY AMENDED) An ear protection system
~~comprising~~ consisting of:

a plurality of ear protection devices for preventing
20 the penetration of harmful and disturbing sounds into the ear canal,

an encasement structure comprising at least two members, wherein said members are coupled together;

further, wherein said encasement structure is coupled to said ear protection device; and

a mounting means for removably mounting said encasement structure upon an entity for convenient
5 placement of said encasement structure;

wherein said plurality of ear protection devices are coupled to said encasement means by a plurality of retraction means for selectively retracting said plurality of ear protection devices toward said encasement structure;

10 and

wherein said plurality of retraction means operate said plurality of ear protection devices independently.

--25. (ORIGINAL) An ear protection system according to
15 claim 24, wherein said ear protection devices comprise earplugs.

--26. (CANCELLED)

20 --27. (ORIGINAL) An ear protection system according to claim 24, wherein said plurality of ear protection devices are independently ~~removably~~ removable and coupled to said encasement structure.

--28. (CANCELLED)

--29. (CURRENTLY AMENDED) An ear protection device according to claim 28, wherein said plurality of ear
5 protection devices are independently ~~removably~~ removable
and coupled to said plurality of retraction means.

--30. (CURRENTLY AMENDED) An ear protection system according to claim 28, wherein each of said plurality of
10 retraction means comprises a cord for independently
coupling each of said plurality of ear protection devices to said encasement structure.

--31. (ORIGINAL) An ear protection system according to
15 claim 30, wherein said retraction means comprises spools for mounting said cord.

--32. (ORIGINAL) An ear protection system according to claim 28, wherein said retraction means comprises a spring-
20 loaded locking mechanism for securing the extension of said plurality of ear protection devices.

--33. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a thumb slide.

5 --34. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a push button.

--35. (ORIGINAL) An ear protection system according to
10 claim 32, wherein said spring-loaded locking mechanism comprises a ratchet.

--36. (ORIGINAL) An ear protection system according to claim 24, wherein said encasement structure is constructed
15 of plastic.

--37. (ORIGINAL) An ear protection system according to claim 24, wherein said mounting means comprises a clip-on means.
20

--38. (ORIGINAL) An ear protection system according to claim 37, wherein said clip-on means is rotatable.

--39. (NEW) An ear protection system according to claim 1,
wherein said mounting means is only attached to a user's
shirt collar.

5 --40. (NEW) An ear protection system according to claim 1,
wherein said mounting means is only attached to a user's
cell phone.

--41. (NEW) An ear protection system according to claim 1,
10 wherein said mounting means is only attached to a user's
bathing cap.

--42. (NEW) An ear protection system according to claim 1,
wherein said mounting means is only attached to a user's
15 eye gear.

--43. (NEW) An ear protection system according to claim 1,
wherein said mounting means is only attached to a user's
jacket.

REMARKS

Applicant believes that the foregoing amendments and the following comments will convince the Examiner that the rejections and objections provided in the June 03, 2003
5 Office Action have been overcome and should be withdrawn.

I. THE INVENTION

This invention relates to the field of ear protection systems, and in particular, means for stowage of protective
10 ear devices. Further, the invention relates to an encasement for ear protection devices with means for extension and retraction of protective ear devices that affords the user adjustability and versatility in placement of the encasement. The invention is designed to be
15 adaptable to any type of environment or situation a user may encounter where it is desirable to block out a harmful or disturbing noise.

II. THE EXAMINER'S OBJECTIONS

20 The Examiner objected to the drawings because Figure 3A was not included. Further, the drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Specifically, the thumb

slide, the push button, and the ratchet were not shown in the drawings.

The disclosure was objected to because of the following informalities:

- 5 "On page 18, line 5, after 'upper section' should read --
305 -- instead of '304';
- On page 18, line 5 after 'lower section' should read
--304 -- instead of '305';".

The Abstract was objected to for not following proper
10 language and format. Particularly, the Examiner noted that
the "form and legal phraseology often used in patent
claims, such as 'means' and 'said,' should be avoided."

III. THE EXAMINER'S REJECTIONS

15 A. 35 U.S.C. § 112

The Examiner rejected claim 26 under 35 U.S.C. § 112,
second paragraph, as being indefinite. Particularly, the
Examiner contended that there is "insufficient antecedent
basis" for the limitation "said earplugs" in line 2 of the
20 claim. (paragraph 3).

B. 35 U.S.C. § 102(b)

The Examiner has rejected claims 15, 16, 18, 20, 22
through 32, 34, 35 and 37 under 35 U.S.C. § 102(b) as being
anticipated by Nakano U.S. Patent No. 5,581,821

(hereinafter referred to as "Nakano"). The Examiner contended that Nakano teaches a method and system of ear protection comprising the steps of:

5 "providing an encasement structure comprising at least an anterior member (Fig.6, Item 25) and posterior member (Fig.6, Item 24), wherein the anterior member and the posterior member are removably coupled together, preventing the
10 penetration of harmful sounds into the ear canal by providing a plurality of ear protection devices (Fig.2, Items 15 and 17), selectively retracting the plurality of ear protection devices, wherein the selectively retracting is executed by retraction means (Fig.4), securely
15 stowing the plurality of ear protection devices adjacent to the encasement structure; and mounting the encasement structure upon an entity for convenient placement of the encasement structure with removable mounting means(Figs.1-
20 3), and wherein the ear protection devices comprise earplugs (Fig.2, Items 15 and 17) (Col.2, Line 52 - Col.4, Line 36)." (Paragraph 4).

25 According to the Examiner, Nakano further teaches wherein the ear protection devices are removably coupled to the retraction means; wherein the retraction means comprises a cord mounted on a spool; wherein the retracting
step comprises securing the extension of the plurality of
30 ear protection devices by a spring loaded locking mechanism; wherein the spring loaded locking mechanism comprises a push button and a ratchet; and wherein the mounting means comprises a clip-on means.

C. 35 U.S.C. § 103

1. Claims 21, 33 and 36

The Examiner rejected claims 21, 33 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Rozon U.S. Patent No. 5,279,473 (hereinafter referred to as "Rozon"). The Examiner opined that Nakano discloses the claimed invention except for wherein the spring-loaded locking mechanism comprises a thumb slide and wherein the encasement structure is constructed of plastic. Rozon, in the opinion of the Examiner, teaches a cord retraction device comprising a spring-loaded locking mechanism that comprises a thumb slide and wherein the encasement structure is constructed of plastic. The Examiner argued that it would be obvious "to employ the Rozon thumb slide with the Nakano system because the thumb slide is easy to use and provide [sic] a good ergonomically fit actuator for a user to use." (paragraph 5).

2. Claim 38

The Examiner rejected claim 38 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Burger U.S. Patent No. 4,802,638 (hereinafter referred to as "Burger"). The Examiner argued that it would have been obvious to employ the rotatable clip on means disclosed in Burger with the Nakano design because "it would provide a certain degree of movement that would prevent the cord from

get [sic] tangled with the surface of the enclosure."
(paragraph 6).

3. Claims 1 through 9, 11 through 13, 17 and 19

The Examiner rejected claims 1 through 9, 11 through
5 13, 17 and 19 under 35 U.S.C. § 103(a) as being
unpatentable over Nakano in view of Liao U.S. Patent No.
6,416,005 (hereinafter referred to as "Liao"). The
Examiner argued that Nakano discloses the claimed invention
with the exception of "a plurality of retraction means
10 disposed within the encasement structure." According to
the Examiner, it would have been obvious "to employ a
plurality of retraction means, as described by Liao, in the
Nakano design." (paragraph 7).

4. Claims 6 and 10

15 Claims 6 and 10 were rejected under 35 U.S.C. §
103(a) as being unpatentable over Nakano, in view of Liao,
and further in view of Rozon. The Examiner contended that
Nakano and Liao disclose the claimed invention with the
exception wherein the spring-loaded locking mechanism
20 comprises a thumb slide and wherein the encasement
structure is constructed of plastic. The Examiner stated
that it would have been obvious "to employ the Rozon thumb
slide with the Nakano and Liao system because the thumb

slide is easy to use and provide a good ergonomically fit actuator for a user to use." (paragraph 8).

5. Claim 14

The Examiner rejected Claim 14 under 35 U.S.C. §
103(a) as being unpatentable over Nakano in view of Liao,
and further in view of Burger. The Examiner contended that
Nakano and Liao disclose the claimed invention but fail to
disclose the rotatable clip-on means. The Examiner found
that it would have been obvious to employ the rotatable
clip-on means of Burger with the Nakano and Liao design
"because it would provide a certain degree of movement that
would prevent the cord from get tangle [sic] with the
surface of the enclosure." (paragraph 9).

15 **IV. THE EXAMINER'S OBJECTIONS AND REJECTIONS SHOULD BE
WITHDRAWN**

A. DRAWINGS

The Examiner objected to the drawings for not showing
FIG. 3A. Applicant directs the Examiner's attention to the
drawings labeled "300". The drawing to the left has now
been labeled FIG. 3A while the drawing to the right has now
been labeled FIG. 3 to distinguish the front and side view
drawings.

The Examiner also objected to the drawings for not showing every feature of the invention. Applicant has amended the drawings in accordance to show pushbutton 109, ratchet 110 and thumbslide 601. No new matter has been
5 added.

C. 35 U.S.C. § 112

The Examiner rejected claim 26 under 35 U.S.C. § 112, second paragraph, as being indefinite. In response, Applicant has amended claim 26 to avoid redundancy with
10 claim 27.

B. 35 U.S.C. § 102

The Examiner has rejected claims 15, 16, 18, 20, 22-32, 34, 35 and 37 under 35 U.S.C. § 102(b) as being anticipated by Nakano. Nakano is directed to an ear
15 protection device for attachment to a construction helmet. The invention specifically relates to the field of construction, in which the ear protectors are designed to be readily accessible for use by a workman. Applicant respectfully submits that the teaching of Nakano is limited
20 to the use of an ear protection assembly in combination with headgear having a crown and a forwardly extending peak. Nakano specifically discloses:

"[A] reelable ear plug assembly detachably carried on a helmet 11, such as is used by a

5 construction worker. The helmet may be referred to as a construction helmet and the assembly is carried on a housing 12 which may be attached to the rear of the helmet, as shown, such as with adhesive or by a releasable clamp, or, if desired, the housing may be detachably connected to a brim or visor 13 formed with the crown of the helmet 11."

10 The specific design of the ear protection assembly device disclosed by Nakano limits the invention to specific placement on the brim or crown of a construction helmet. The device consists of only one retraction means which inhibits independent control of the left and right ear
15 protection devices. Thus, placement of the encasement structure is limited to either the middle of the "forwardly extending peak" or the middle of the back of the headgear, i.e., somewhere that is an equal distance between the user's ears. The Nakano design further requires that the
20 user utilize both earplug devices at the same time, or else one end of the cord would remain dangling, which defeats the objective of the cord stowage device. The limitation of placement of the encasement structure prevents the user from attaching the device to any article of clothing such
25 as a shirt collar or pocket that may require unequal lengths of cord in order to reach each ear. Additionally, Nakano teaches away from an earplug device wherein the user only wishes to block noise on one side. For example, if a

user wishes to use a cell phone in a noisy environment, the user may wish to only use the ear protection device in one ear while keeping the plug for the other ear stored in the stowage device. The device of Nakano cannot accomplish
5 this. Thus, even the broadest reading of Nakano would require that the ear protection devices be used in conjunction with headgear that includes a crown and forwardly extending peak. Furthermore, Nakano only discusses an ear protection device where both earplug
10 devices must extend from the stowage compartment at equal lengths and at the same time. The present invention advances beyond Nakano because it does not need to be placed on headgear, does not need to be placed in a location equidistant from both ears, and the left and right
15 ear protection devices can extend and retract independent of the other.

Independent claims 15 and 24 have been amended to more clearly state this distinction discussed above. Specifically, these claims now require "a plurality of
20 retraction means" and that the plurality of retraction means "operate said plurality of ear protection devices independently." Minor amendments to some of their dependent claims have also been made for consistency.

The applicant acknowledges the Examiner's reliance on Liao as disclosing a plurality of retraction means. However, the applicant respectfully submits that the combination of Nakano with Liao is inappropriate. Liao
5 relates to an apparatus for reducing radial friction in a wire winding box, specifically against a communication wire. The invention is directed toward avoiding friction when the communication wire is wound back into the wire box, preventing damage to the communication wire and thus
10 increasing its lifetime.

Applicant respectfully points out that, standing on their own, these references provide no justification for the combination asserted by the Examiner.

15 "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of
20 references can be combined only if there is some suggestion or incentive to do so." ACS Hospital Systems Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984) (emphasis in original).

25 The cited references provide no such suggestion or incentive for the combination suggested by the Examiner. Therefore, the obviousness rejection could only be the result of a hindsight view with the benefit of Applicant's

specifications. It is well-settled that this type of analysis is inappropriate:

5 "To draw on hindsight knowledge of the
patented invention, when the prior art does not
contain or suggest that knowledge, is to use the
invention as a template for its own
reconstruction -- an illogical and inappropriate
process by which to determine patentability. The
10 invention must be viewed not after the blueprint
has been drawn by the inventor, but as it would
have been perceived in the state of the art that
existed at the time the invention was made."
Seasonics v. Aerosonic Corp. 38 USPQ 2d 1551,
1554 (1996) (citations omitted).

15 In addition, the combination advanced by the Examiner
is not legally proper -- on reconsideration the Examiner
will undoubtedly recognize that such a position is merely
an "obvious to try" argument. The disclosure in Liao's
20 specification and claims does not reveal functional or
design choices that could possibly include that of
Applicant's invention. Furthermore, the structure of the
design disclosed in Nakano's specification and claims could
not possibly allow for that of Applicant's invention.
25 Accordingly, it is not obvious to combine these patents in
any combination to arrive at the present invention. At
best it might be obvious to try such a modification, but of
course, "obvious to try" is not the standard for
obviousness under 35 U.S.C. § 103. Hybritech, Inc. v.

Monoclonal Antibodies, Inc., 231 USPQ 81, 91 (Fed. Cir. 1986).

Under the circumstances, Applicant respectfully submits that the Examiner has succumbed to the "strong
5 temptation to rely on hindsight." Orthopedic Equipment Co. v. United States, 702 F.2d 1005, 1012, 217 USPQ 193, 199 (Fed. Cir. 1983):

10 "It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claim in suit. Monday morning quarter backing is quite improper when resolving the question of non-obviousness in
15 a court of law." Id.

Applicant submits that the only "motivation" for the Examiner's combination of the references is provided by the teachings of Applicant's own disclosure. No such motivation is provided by the reference itself.

20 Thus, the present invention, for the first time, discloses novel methods and apparatus for ear protection and stowage to allow for comfort, easy accessibility, flexibility, and applicability to any type of environment. This represents a vast improvement over the prior art, and
25 is not taught or disclosed anywhere in the prior art. Further, the cited references neither teach nor suggest the novel and nonobvious features of this invention.

C. 35 U.S.C. § 103

The Examiner rejected claims 21, 33 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Rozon. Rozon is directed toward a cord retraction device specifically adapted for use with window blinds.

5 Applicant respectfully submits that there is no motivation for the combination of Nakano in view of Rozon as relates to the present invention. The invention of Rozon teaches the reversible taking up of slack in cord, specifically for a pair of free-ended cords found in Venetian blinds or a

10 cord loop found in a vertical blind. In fact, Rozon acknowledges that many retraction devices already exist, but none that are effectively adapted to the requirements of window blind cord retraction devices. It would be improper to combine this reference with the system of

15 Nakano to achieve the result of the present invention. Rozon teaches the use of a thumbslide or "catch" to hold the spool in position. Since this design is intended for use with window blinds, the retraction of the cord operates mechanically different from that of the ear protection

20 device of Nakano. In Rozon, both ends of the cord are adjustable and move through the rotating spool. When the catch is engaged to retract the cord, only the excess cord is wound onto the spool, unlike Nakano which retracts the entire piece of cord. Thus, the design of Rozon, which

pertains to window blinds, is distinctly different from the invention of Nakano and it would be unobvious to combine the two inventions which relate to distinctly different fields to form the system of the present invention.

5 The Examiner rejected claim 38 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Burger. Burger relates to an apparatus for storing excess wire, cable and other cordage. The invention particularly relates to an "apparatus for storing the excess cordage
10 which often results when a radio user installs a radio at one location on the body and then connects the radio to a peripheral device which is situated elsewhere on the body."
(see Col. 1, Lines 7-11)

Applicant respectfully submits that the Examiner's
15 reliance on Burger in combination with Nakano is inappropriate. It would not be obvious to combine the design disclosed by Nakano with the rotatable clip of Burger. Nakano discloses an ear protection device in an encasement structure, the design of which does not allow
20 for flexibility in placement or movement of the encasement structure. Movement or re-orientation of the encasement structure would disrupt positioning of the ear protection device in the user's ear. There would be no motivation to apply a rotatable clip to the design of Nakano because the

design of Nakano is for specific placement on a construction worker's headgear. Thus, the combination of Nakano and Burger to create the system of the present invention would not be obvious or even practical.

5 The Examiner rejected claims 1 through 9, 11 through 13, 17 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Liao. As discussed above with respect to the amendments to claims 15, 16, 18, 20, 22 through 32, 34, 35 and 37, Applicant respectfully
10 submits that the combination of Nakano in view of Liao is inappropriate. The invention disclosed in Liao does not relate to an ear protection system as disclosed in the present invention. The applicant has amended independent claim 1 to more clearly show the novelty of the present
15 invention with respect to Nakano. Minor changes to dependent claims have further been made to more clearly define the invention.

 The Examiner rejected claims 6 and 10 under 35 U.S.C. § 103 as unpatentable over Nakano in view of Liao, and
20 further in view of Rozon. As discussed above, applicant respectfully submits that such a combination is inappropriate.

 The Examiner rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Nakano in view of Liao,

and further in view of Burger. As discussed above, the applicant respectfully submits that there is no motivation to combine any of these references to achieve the system of the present invention. Further, the cited references
5 neither teach nor suggest the novel and nonobvious features of this invention.

V. ADDITIONAL AMENDMENTS

The independent claims have been amended to recite "consisting of" in place of "comprising" in the preamble of
10 those claims, in the interest of more specifically defining the invention.

Dependent claims 39-43 have been added to more completely claim the present invention. The new claims are directed to specific placement of the encasement structure
15 to further distinguish the present invention from the system disclosed by Nakano, which is limited to placement of an encasement structure on a user's construction helmet. No new matter has been added. Importantly, these claims teach the ear protection system of all other pending claims
20 (as amended), with additional limitations, and therefore, are in condition for allowance for the same reasons as discussed above.

CONCLUSION

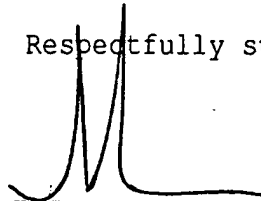
In light of the foregoing amendments and remarks,
Applicant submits that the specification, drawings, and all
pending claims are now in condition for allowance. Early
5 and favorable action is accordingly solicited.

10

Date: _____

11/3/03

Respectfully submitted,



John W. Olivo, Jr.
Reg. No. 35,634
Ward & Olivo
382 Springfield Ave.
Summit, NJ 07901
908-277-3333

15

IN THE DRAWINGS

Please amend the drawings to include the labels FIG. 1, FIG. 2, FIG. 3A, FIG. 3, FIG. 4, FIG. 5, and FIG. 6 as shown. Additionally, please amend FIGS. 2 and 3 as shown, and add new FIGS. 5 and 6 as depicted in the attached drawings. No new matter has been added.

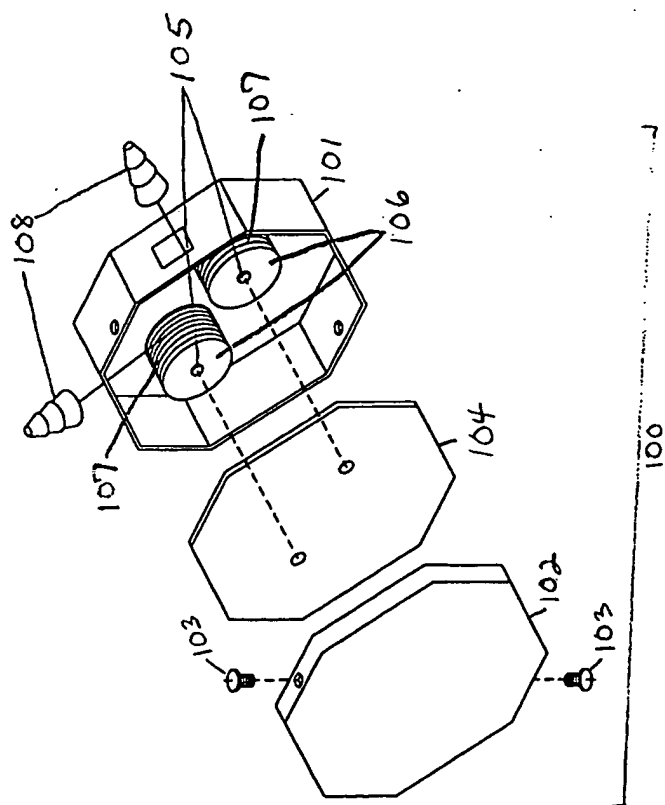


FIG. 1

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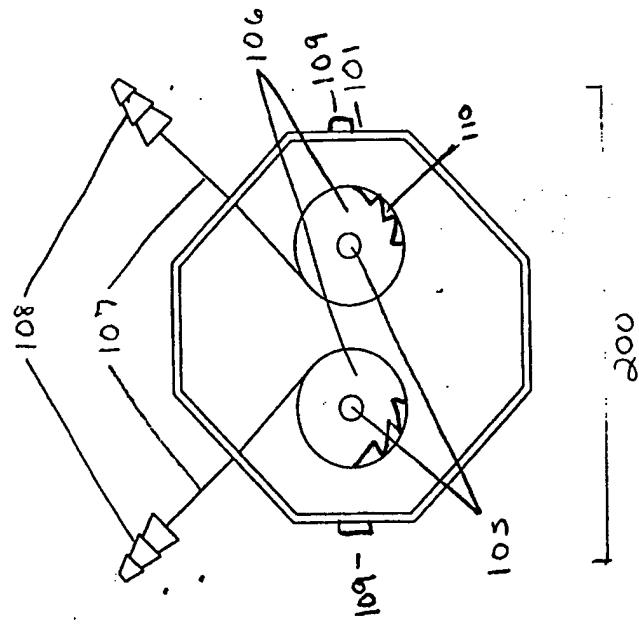


FIG. 2

FIG. 3A

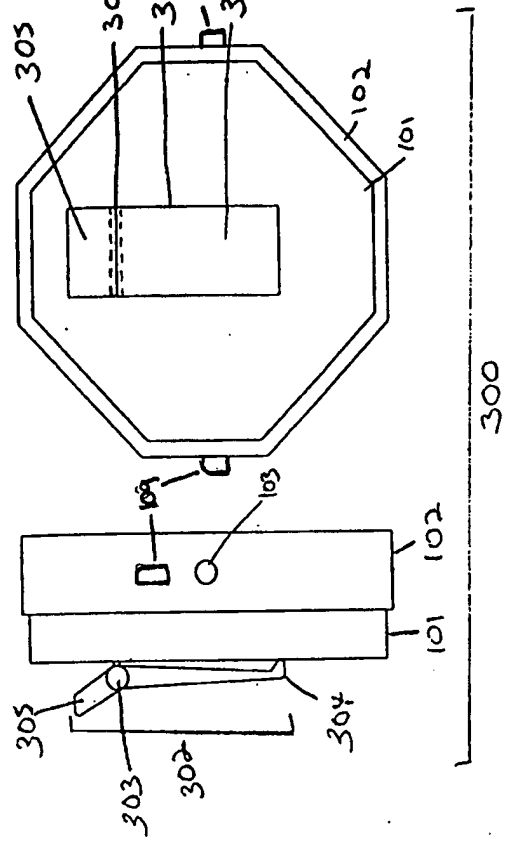


FIG. 3

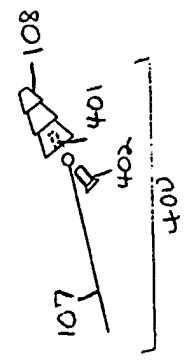


FIG. 4

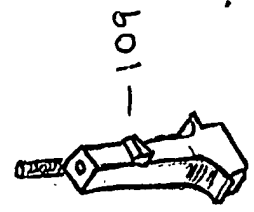


FIG. 5

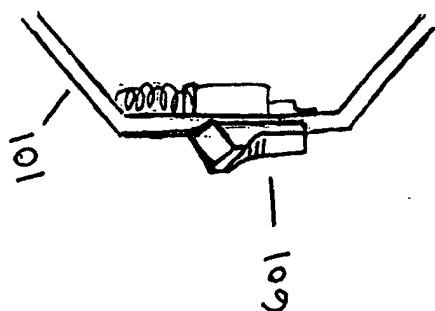
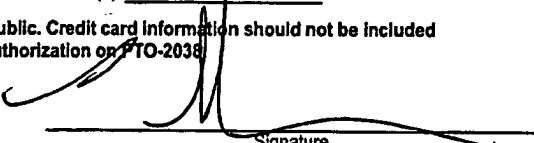


FIG. 6



PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 973-001	
In re Application of Jon Weise			
Application Number 10/020,744		Filed 10/30/01	
For Retractable Ear Protection Device			
Art Unit 2837		Examiner Edgardo San Martin	
<p>This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.</p> <p>The requested extension and appropriate non-small-entity fee are as follows (check time period desired):</p> <p><input type="checkbox"/> One month (37 CFR 1.17(a)(1)) \$ _____</p> <p><input checked="" type="checkbox"/> Two months (37 CFR 1.17(a)(2)) \$ 420.00</p> <p><input type="checkbox"/> Three months (37 CFR 1.17(a)(3)) \$ _____</p> <p><input type="checkbox"/> Four months (37 CFR 1.17(a)(4)) \$ _____</p> <p><input type="checkbox"/> Five months (37 CFR 1.17(a)(5)) \$ _____</p> <p><input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount shown above is reduced by one-half, and the resulting fee is: \$ 210.00.</p> <p><input checked="" type="checkbox"/> A check in the amount of the fee is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The Director has already been authorized to charge fees in this application to a Deposit Account.</p> <p>The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____.</p> <p>I have enclosed a duplicate copy of this sheet.</p> <p>I am the <input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration Number 35634</p> <p><input type="checkbox"/> attorney or agent under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1.34(a) _____</p> <p>WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</p> <p><u>November 3, 2003</u> Date</p> <p><u>908-277-3333</u> Telephone Number</p> <p><u></u> Signature</p> <p><u>JOHN W. OLIVER, JR.</u> Typed or printed name</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.</p> <p><input type="checkbox"/> Total of _____ forms are submitted.</p>			

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,744	10/30/2001	Jon Weise	973-001	9689

7590

03/25/2004

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Summit, NJ 07901

EXAMINER

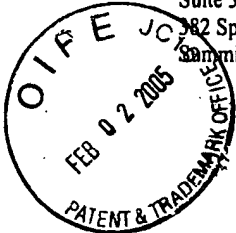
SAN MARTIN, EDGARDO

ART UNIT

PAPER NUMBER

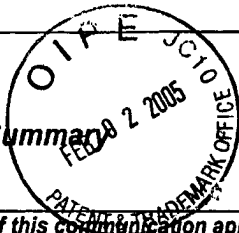
2837

DATE MAILED: 03/25/2004



Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary



Application No.

10/020,744

Applicant(s)

WEISE, JON

Examiner

Edgardo San Martin

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25,27 and 29-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25,27 and 29-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter presented on claims 39 – 43 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- the specification does not describe the subject matter presented in claims 40 – 42.

Claim Objections

3. Claims 29 – 35 are objected to because of the following informalities:

- Claims 29 – 35 depend upon claim 28, which is indicated to be cancelled in the amendment filed on November 5, 2003; the claims

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would be consider being dependable upon claim 24 for the sake of
advancing the prosecution of the application.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 40 – 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not describe the subject matter presented in claims 40 – 42; the only intent to describe the subject matter is found in Page 10, Lines 17 – 20 of the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2837

5. Claims 1 – 5, 7 – 9, 11 – 13, 15 – 20, 22 – 25, 27, 29 – 32, 34, 35, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urawa (JP 08237349) in view of Nakano (US 5,581,821).

With respect to claims 1, 2, 15, 24 and 25, Urawa teaches an earphone system consisting of an earphone device (Fig.3, Item 31) and a connector device (Fig.3, Item 32), an encasement structure (Fig.3, Item 2) comprising at least an anterior member and posterior member, wherein the anterior member and the posterior member are coupled together; a plurality of retraction means (Fig.3, Items 26 and 27) disposed within the encasement structure for selectively retracting the earphone and connector devices toward the encasement structure; and mounting means (Fig.1, Item 7) for removably mounting the encasement structure upon an entity for convenient placement of the encasement structure; wherein the plurality of retraction means operates the earphone and connector devices independently (Fig.3; Abstract). However, Urawa fails to teach a plurality of ear protection devices instead of the earphone and connector devices.

On the other hand, Nakano teaches a retractable ear protection system comprising a plurality of ear protection devices, wherein the plurality of ear protection devices comprises earplugs (Figs.2 and 3, Items 15 and 17).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Nakano earplugs with the Urawa independently operable retraction means because the teachings combination would result in a system of independently-retractable earplugs, in which, each of the earplugs could be controlled

to extend to a desire length depending on the need, and wherein only one of the earplugs could be used if that is the need.

With respect to claim 3, Nakano teaches wherein the earplugs are removably coupled to the retraction means (Col.4, Line 34+).

With respect to claims 4, 16 and 29, the obvious combination of the teachings of Urawa and Nakano teach wherein the plurality of ear protection devices is independently removable and coupled to the retraction means.

With respect to claims 5 and 17, Urawa teaches wherein the interior of the encasement structure comprises protruding axes perpendicular the anterior member (Fig.3, central members wherein the spools (25, 26) are mounted).

With respect to claims 7, 18, 27 and 30, Urawa teaches wherein the retraction means comprises a cord (Fig.3, Items 33 and 34) for coupling the plurality of ear protection devices to the encasement structure.

With respect to claims 8, 19 and 31, Urawa teaches wherein the retraction means comprises spools (Fig.3, Items 25 and 26) for mounting the cord.

With respect to claims 9, 11, 20, 22, 32 and 34, Urawa teaches wherein the retraction means comprises a spring loaded locking mechanism (Fig.3, Items 17 and 18) for securing the extension of the plurality of ear protection devices, and wherein the spring loaded locking mechanism comprises a push button (Fig.3, Items 17 and 18).

With respect to claims 12, 23 and 35, Nakano teaches a spring-loaded locking mechanism comprising a ratchet (Figs.4 – 6).

With respect to claims 13 and 37, Urawa teaches wherein the mounting means comprises clip-on means (Fig.1, Item7).

With respect to claim 40, Urawa teaches wherein the mounting means is only attached to a user's cell phone (Fig. 5).

6. Claims 6, 10, 21, 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urawa (JP 08237349) in view of Nakano (US 5,581,821), and further in view of Rozon (US 5,279,473).

Urawa and Nakano teaches the limitations described in the previous rejections, but fail to disclose wherein the encasement structure is constructed of plastic, and wherein the spring loaded locking mechanism comprises a thumb slide.

Nevertheless, Rozon teaches a cord retraction device comprising a spring locking mechanism (Fig.2, Item 37) comprising a thumb slide (Fig.2, Item 36), and wherein an encasement structure is constructed of plastic (Col.2, Line 27).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Rozon configuration with the Urawa and Nakano design because the thumb slide is easy to use and provide a good ergonomically fit actuator for a user to use, and the plastic encasement structure would provide an economical and light-weight structure that would be easy to carry by and user and low cost to produce.

7. Claims 14 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urawa (JP 08237349) in view of Nakano (US 5,581,821), and further in view of Burger et al. (US 4,802,638).

Urawa and Nakano teaches the limitations described in the previous rejections, but fail to disclose wherein the clip-on means is rotatable.

On the other hand, Burger et al. teach a cord stowage device comprising a rotatable clip-on means (Fig.12).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Burger et al. rotatable clip-on with the Urawa and Nakano design because it would provide a certain degree of movement that would prevent the cord from getting tangle with the surface of the encasement structure.

8. Claims 39 and 41 – 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urawa (JP 08237349) in view of Nakano (US 5,581,821), and further in view of Yang (US 5,984,224).

Urawa and Nakano teaches the limitations discussed in the previous rejections, but fail to disclose wherein the mounting means could be attached to a user's shirt collar or a bathing cap or an eye gear or a jacket.

Nevertheless, Yang teaches a cord spooling device that comprises a mounting means (Fig.1, Item 40) that could be attached onto any item worn by a user (Abstract and Col.2, Lines 6 – 11).

It would have been obvious to a person with ordinary skill in the art at the time of the invention was made to employ the Yang configuration with the Urawa and Nakano design because it would provide the versatility of being attached to any item worn by a user increasing the practical applications of the ear protection system.

Response to Arguments

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection necessitated by the Amendment filed on November 5, 2003.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edgardo San Martin whose telephone number is (571)272-2074. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on (571) 272-2071. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edgardo San Martin
Patent Examiner
Art Unit 2837
Class 181
March 15, 2004


ROBERT NAPPI
SUPERVISORY PATENT EXAMINER



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,744	10/30/2001	Jon Weise	973-001	9689

7590 06/07/2004

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Summit, NJ 07901

EXAMINER

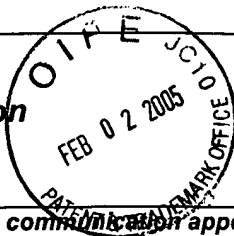
SAN MARTIN, EDGARDO

ART UNIT PAPER NUMBER

2837

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

10/020,744

Applicant(s)

WEISE, JON

Examiner

Edgardo San Martin

Art Unit

2837

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 20 May 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. **ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).**

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☒ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1-25,27,29-43.

Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
10. ☐ Other: _____


DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Continuation of 2. NOTE: the Examiner considers that the proposed Amendment does not depart the claimed subject matter from the scope of the obvious combination of Urawa and Nakano teachings. The Examiner considers that the Urawa and Nakano teachings' scope involve the independence of the ear protection devices one from each other, including their independent operation .



PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jon Weise

5

Serial No.: 10/020,744

Group Art Unit: 2837

Filed: October 30, 2001

Examiner: Edgardo San Martin

For: Retractable Ear
Protection Device

Atty. Doc. No.: 973-001

Honorable Commission of Patents
Box 1450
Alexandria, VA 22313-1450

10

RESPONSE TO OFFICE ACTION

S I R:

In response to the March 25, 2004 Office Action in the
above mentioned case, Applicant respectfully requests
15 reconsideration in view of the following amendments and
remarks.

IN THE CLAIMS

Please amend the claims as follows:

--1. (CURRENTLY AMENDED) An ear protection system consisting of:

5 a plurality of ear protection devices for preventing the penetration of harmful or disturbing sounds into the ear canal,

an encasement structure comprising at least an anterior member and posterior member, wherein said anterior
10 member and said posterior member are coupled together;

a plurality of retraction means disposed within said encasement structure for selectively retracting said plurality of ear protection devices toward said encasement structure; and

15 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of retraction means operates said plurality of ear protection devices
20 independently[[.]]; and

wherein said ear protection devices are independent of one another.

--2. (ORIGINAL) An ear protection system according to claim 1, wherein said plurality of ear protection devices comprise earplugs.

5 --3. (ORIGINAL) An ear protection system according to claim 2, wherein said earplugs are removably coupled to said retraction means.

--4. (PREVIOUSLY PRESENTED) An ear protection system
10 according to claim 1, wherein said plurality of ear protection devices are independently removable and coupled to said retraction means.

--5. (ORIGINAL) An ear protection system according to claim
15 1, wherein the interior of said encasement structure comprises protruding axes perpendicular to said anterior member.

--6. (ORIGINAL) An ear protection system according to claim
20 1, wherein said encasement structure is constructed of plastic.

--7. (ORIGINAL) An ear protection system according to claim 1, wherein said retraction means comprises a cord for

coupling said plurality of ear protection devices to said encasement structure.

--8. (ORIGINAL) An ear protection system according to claim
5 7, wherein said retraction means comprises spools for
mounting said cord.

--9. (ORIGINAL) An ear protection system according to claim
1, wherein said retraction means comprises a spring loaded
10 locking mechanism for securing the extension of said
plurality of ear protection devices.

--10. (ORIGINAL) An ear protection system according to
claim 9, wherein said spring loaded locking mechanism
15 comprises a thumb slide.

--11. (ORIGINAL) An ear protection system according to
claim 9, wherein said spring loaded locking mechanism
comprises a push button.

20

--12. (ORIGINAL) An ear protection system according to
claim 9, wherein said spring-loaded locking mechanism
comprises a ratchet.

--13. (ORIGINAL) An ear protection system according to claim 1, wherein said mounting means comprises a clip-on means.

5 --14. (ORIGINAL) An ear protection system according to claim 13, wherein said clip-on means is rotatable.

--15. (ONCE AMENDED) A method of ear protection consisting of the steps of:

providing an encasement structure comprising at least an anterior member and posterior member, wherein said
5 anterior member and said posterior member are removably coupled together;

preventing the penetration of harmful or disturbing sounds into the ear canal by providing a plurality of ear protection devices;

10 selectively retracting at least one of said plurality of ear protection devices, wherein said selectively retracting is executed by at least one of a plurality of independent retraction means;

securely stowing said plurality of ear protection
15 devices adjacent to said encasement structure; and

mounting said encasement structure upon an entity for convenient placement of said encasement structure with removable mounting means.

20 --16. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15, wherein said ear protection devices are independently removable and coupled to said retraction means.

--17. (ORIGINAL) A method of ear protection according to claim 15, wherein the interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said anterior member.

5

--18. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools.

10 --19. (ORIGINAL) A method of ear protection according to claim 15, wherein said retraction means comprises a cord mounted on spools; and wherein said interior of said encasement structure comprises protruding axes, wherein said protruding axes are perpendicular to said posterior
15 member; further wherein said spools are mounted on said protruding axes of said encasement structure.

--20. (PREVIOUSLY PRESENTED) A method of ear protection according to claim 15, wherein said retracting step
20 comprises securing each of the extensions of said plurality of ear protection devices by a spring loaded locking mechanism.

--21. (ORIGINAL) A method of ear protection according to claim 20, wherein said spring-loaded locking mechanism comprises a thumb slide.

5 --22. (ORIGINAL) A method of ear protection according to claim 20; wherein said spring-loaded locking mechanism comprises a push button.

--23. (ORIGINAL) A method of ear protection according to
10 claim 20, wherein said spring-loaded locking mechanism comprises a ratchet.

--24. (CURRENTLY AMENDED) An ear protection system consisting of:

a plurality of ear protection devices for preventing the penetration of harmful and disturbing sounds into the
5 ear canal,

an encasement structure comprising at least two members, wherein said members are coupled together; further, wherein said encasement structure is coupled to said ear protection device; and

10 a mounting means for removably mounting said encasement structure upon an entity for convenient placement of said encasement structure;

wherein said plurality of ear protection devices are coupled to said encasement means by a plurality of
15 retraction means for selectively retracting said plurality of ear protection devices toward said encasement structure; [[and]]

wherein said plurality of retraction means operate said plurality of ear protection devices
20 independently[[.]]; and

wherein said ear protection devices are independent of one another.

--25. (ORIGINAL) An ear protection system according to claim 24, wherein said ear protection devices comprise earplugs.

5 --26. (CANCELLED)

--27. (PREEVIOUSLY PRESENTED) An ear protection system according to claim 24, wherein said plurality of ear protection devices are independently removable and coupled
10 to said encasement structure.

--28. (CANCELLED)

--29. (CURRENTLY AMENDED) An ear protection device
15 according to claim [[28]] 24, wherein said plurality of ear protection devices are independently removable and coupled to said plurality of retraction means.

--30. (CURRENTLY AMENDED) An ear protection system
20 according to claim [[28]] 24, wherein each of said plurality of retraction means comprises a cord for independently coupling each of said plurality of ear protection devices to said encasement structure.

--31. (ORIGINAL) An ear protection system according to claim 30, wherein said retraction means comprises spools for mounting said cord.

5 --32. (ORIGINAL) An ear protection system according to claim 28, wherein said retraction means comprises a spring-loaded locking mechanism for securing the extension of said plurality of ear protection devices.

10 --33. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism comprises a thumb slide.

--34. (ORIGINAL) An ear protection system according to
15 claim 32, wherein said spring-loaded locking mechanism comprises a push button.

--35. (ORIGINAL) An ear protection system according to claim 32, wherein said spring-loaded locking mechanism
20 comprises a ratchet.

--36. (ORIGINAL) An ear protection system according to claim 24, wherein said encasement structure is constructed of plastic.

--37. (ORIGINAL) An ear protection system according to claim 24, wherein said mounting means comprises a clip-on means.

5 --38. (ORIGINAL) An ear protection system according to claim 37, wherein said clip-on means is rotatable.

--39.-43. (CANCELLED)

REMARKS

Applicant believes that the foregoing amendments and the following comments will convince the Examiner that the rejections and objections provided in the March 25, 2004 Office Action have been overcome and should be withdrawn.

I. THE INVENTION

This invention relates to the field of ear protection systems, and in particular, means for stowage of protective ear devices. Further, the invention relates to an encasement for ear protection devices with means for extension and retraction of protective ear devices that affords the user adjustability and versatility in placement of the encasement. The invention is designed to be adaptable to any type of environment or situation a user may encounter where it is desirable to block out a harmful or disturbing noise.

II. THE EXAMINER'S OBJECTIONS

The Examiner objected to the drawings under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Specifically, the ear protection system connected to a user's shirt collar, to a user's cell

phone, to a user's bathing cap, to a user's eye gear and to a user's jacket were not shown in the drawings.

The specification was objected to under 37 CFR 1.75(d)(1) for failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner objected to the specification for failing to describe the subject matter of claims 40-42.

Claims 29-35 were objected to for depending upon claim 28, which had been cancelled in response to the Office Action dated June 3, 2003.

III. THE EXAMINER'S REJECTIONS

A. 35 U.S.C. § 112

The Examiner rejected claims 40-42 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Particularly, the Examiner contended that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. (Paragraph 4).

B. 35 U.S.C. § 103

1. Claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34, 35, 37, and 40

5 The Examiner rejected claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34, 35, 37, and 40 under 35 U.S.C. § 103(a) as being unpatentable over Urawa (JP -08237349) in view of Nakano U.S. Patent No. 5,581,821 (hereinafter referred to as "Nakano"). The Examiner opined that Urawa
10 discloses the claimed invention except for a retractable ear protection system comprising a plurality of earplugs. The Examiner argued that it would be obvious "to employ the Nakano earplugs with the Urawa independently operable retractions means because the teachings combination would
15 result in a system of independently retractable earplugs, in which, each of the ear plugs could be controlled to extend to a desire [sic] length depending on the need, and wherein only one of the earplugs could be used if that is the need." (Paragraph 5).

20 2. Claim 6, 10, 21, 33, and 36

 The Examiner rejected claims 6, 10, 21, 33, and 36 under 35 U.S.C. § 103(a) as being unpatentable over Urawa in view of Nakano, in further view of Rozon U.S. Patent No. 5,279,473 (hereinafter referred to as "Rozon"). The
25 Examiner stated that Urawa and Nakano disclose the claimed

invention except for an encasement structure constructed of plastic and a spring loaded locking mechanism comprised as a thumb slide. The Examiner argued that it would have been obvious to employ the "Rozon configuration with the Urawa and Nakano design because the thumb slide is easy to use and provide [sic] a good ergonomically fit actuator for a user to use, and the plastic encasement structure would provide an economical and light-weight structure that would be easy to carry by and [sic] user and low cost to produce." (Paragraph 6).

3. Claims 14 and 38

The Examiner rejected claims 14 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Urawa in view of Nakano, in further view of Burger et al. U.S. Patent No. 4,802,638 (hereinafter referred to as "Burger"). The Examiner argued that Nakano discloses the claimed invention with the exception of "wherein the clip-on means is rotatable." According to the Examiner, it would have been obvious "to employ the Burger et al. rotatable clip-on with the Urawa and Nakano design because it would provide a certain degree of movement that would prevent the cord from getting tangle [sic] with the surface of the encasement structure." (Paragraph 7).

4. Claims 39 and 41-43

Claims 39 and 41-43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Urawa, in view of Nakano, in further view of Yang U.S. Patent No. 5,984,224. The Examiner contended that Urawa and Nakano disclose the claimed invention with the exception "wherein the mounting means could be attached to a user's shirt collar or a bathing cap or an eye gear or a jacket." The Examiner stated that it would have been obvious "to employ the Yang configuration with the Urawa and Nakano design because it would provide the versatility of being attached to any item worn by a user increasing the practical application of the ear protection system" (paragraph 8).

15 IV. THE EXAMINER'S OBJECTIONS AND REJECTIONS SHOULD BE WITHDRAWN

A. OBJECTIONS

The Examiner objected to the drawings under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Specifically, the ear protection system connected to a user's shirt collar, to a user's cell phone, to a user's bathing cap, to a user's eye gear and to a user's jacket were not shown in the drawings. Claims 39-

42, directed to the missing drawing elements, have been cancelled.

The specification was objected to under 37 CFR 1.75(d)(1) for failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner objected to the specification for failing to describe the subject matter of claims 40-42. As stated above, claims 40-42 have been cancelled.

Claims 29-35 were objected to for depending upon claim 28, which had been cancelled. Applicant has amended claims 29-30 to depend upon claim 24 and provide proper claim dependency.

B. REJECTIONS

1. 35 U.S.C. § 112

The Examiner rejected claims 40-42 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Particularly, the Examiner contended that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. As stated above, claims 40-42 have been cancelled.

2. 35 U.S.C. § 103

The Examiner rejected claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34, 35, 37, and 40 under 35 U.S.C. §103(a) as being unpatentable over Urawa in view of Nakano.

5 Urawa is directed toward an earphone and connector device, in which the earphone wire is maintained on a spool. The spool allows the wire to be selectively retracted. The Examiner states that Urawa teaches a "...plurality of retraction means operates the earphone and connector
10 devices independently (Fig.3; Abstract)." (Paragraph 5).

The Examiner's attention should be drawn to element 3 of Figure 3 of Urawa, which designates the cord connecting the earphone 31 and the plug 32. As the earphone 31 and plug 32 are connected by the same cord 3, they cannot be
15 operated and retracted independently as the two pieces are connected to one another. In fact, the operation of the two elements is dependent upon one another. Should a user decide to extend the earphone 31 until no more cord was left on reel 25, the length of the cord a user could extend
20 for the plug 32 would be limited. Therefore, as the use of earphone 31 affects the use of plug 32, the operation and retraction of these two elements in Urawa cannot be independent as required by the language of claims 1 and 24.

Applicant has amended claims 1 and 24 to more particularly highlight the distinction discussed above. Specifically, Applicant has added language identifying the independence of the ear protection devices from one another. As the earphone 31 and plug 32 of Urawa cannot be independent of another due to the necessity of an electrical connection between the two elements, Urawa cannot anticipate the instant invention nor can Urawa render the instant invention obvious in combination with any of the references currently cited.

With respect to Nakano, we believe our description and arguments still apply. Nakano is directed to an ear protection device for attachment to a construction helmet. The invention specifically relates to the field of construction, in which the ear protectors are designed to be readily accessible for use by a workman. Applicant respectfully submits that the teaching of Nakano is limited to the use of an ear protection assembly in combination with headgear having a crown and a forwardly extending peak. Nakano specifically discloses:

"[A] reelable ear plug assembly detachably carried on a helmet 11, such as is used by a construction worker. The helmet may be referred to as a construction helmet and the assembly is carried on a housing 12 which may be attached to the rear of the helmet, as shown, such as with adhesive or by a releasable clamp, or, if

desired, the housing may be detachably connected to a brim or visor 13 formed with the crown of the helmet 11."

5 The specific design of the ear protection assembly device disclosed by Nakano limits the invention to specific placement on the brim or crown of a construction helmet. The device consists of only one retraction means which inhibits independent control of the left and right ear
10 protection devices. Thus, placement of the encasement structure is limited to either the middle of the "forwardly extending peak" or the middle of the back of the headgear, i.e., somewhere that is an equal distance between the user's ears. The Nakano design further requires that the
15 user utilize both earplug devices at the same time, or else one end of the cord would remain dangling, which defeats the objective of the cord stowage device. The limitation of placement of the encasement structure prevents the user from attaching the device to any article of clothing such
20 as a shirt collar or pocket that may require unequal lengths of cord in order to reach each ear. Additionally, Nakano teaches away from an earplug device wherein the user only wishes to block noise on one side. For example, if a user wishes to use a cell phone in a noisy environment, the
25 user may wish to only use the ear protection device in one ear while keeping the plug for the other ear stored in the

stowage device. The device of Nakano cannot accomplish this. Thus, even the broadest reading of Nakano would require that the ear protection devices be used in conjunction with headgear that includes a crown and forwardly extending peak. Furthermore, Nakano only discusses an ear protection device where both earplug devices must extend from the stowage compartment at equal lengths and at the same time. The present invention is an improvement over Nakano because it does not need to be placed on headgear, does not need to be placed in a location equidistant from both ears, and the left and right ear protection devices can extend and retract independent of the other.

As shown, the combination of Urawa and Nakano does not disclose every element of the invention as claimed. As such, the Examiner's rejection of claims 1-5, 7-9, 11-13, 15-20, 22-25, 27, 29-32, 34, 35, 37 and 40 under 35 U.S.C. §103(a) should be withdrawn.

Further, the Examiner rejected claims 6, 10, 21, 33 and 36 under 35 U.S.C. §103(a) as being unpatentable over Urawa in view of Nakano and in further view of Rozon. As stated above, the combination of Urawa and Nakano fails to teach every element of the invention as claimed. The additional combination of Rozon also fails to teach the

element of ear protection devices that operate independently of one another.

Rozon is directed toward a cord retraction device specifically adapted for use with window blinds. Applicant
5 respectfully submits that there is no motivation for the combination of Urawa in view Nakano and in further view of Rozon as relates to the present invention. The invention of Rozon teaches the reversible taking up of slack in cord, specifically for a pair of free-ended cords found in
10 Venetian blinds or a cord loop found in a vertical blind. In fact, Rozon acknowledges that many retraction devices already exist, but none that are effectively adapted to the requirements of window blind cord retraction devices.

The design of Rozon, which pertains to window blinds,
15 is in a distinctly different field from the inventions of Urawa and Nakano, and does not provide a suggestion for one of ordinary skill in the art to the combine the references to arrive at the instant invention. Further, the combination of Urawa, Nakano and Rozon fails to teach each
20 and every element of the invention as claimed. Therefore, the rejection of claims claims 6, 10, 21, 33 and 36 under 35 U.S.C. §103(a) should be withdrawn.

The Examiner also rejected claims 14 and 38 under 35 U.S.C. §103(a) as being unpatentable over Urawa in view of

Nakano and in further view of Burger. As stated above, the combination of Urawa and Nakano do not teach every element of the invention as claimed. Specifically, Urawa fails to teach ear protection devices that are independent of one another. The Examiner cites Burger for teaching a clip-on means that is rotatable. As such, the additional combination of Burger with Urawa and Nakano fails to teach every element of the invention as claimed. Therefore the rejection of claims 14 and 38 under 35 U.S.C. §103(a) should be withdrawn.

The Examiner also rejected claims 39 and 41-43 under 35 U.S.C. §103(a) as being unpatentable over Urawa in view of Nakano and in further view of Yang. Applicant has cancelled claims 39 through 43. Therefore, the rejection is moot and should be withdrawn.

V. ADDITIONAL AMENDMENTS

Independent claims 1 and 24 have been amended to show that the ear protection devices are independent from one another in the interest of more specifically defining the invention. The amendments have been made to further distinguish the present invention from the system disclosed by Urawa.

Importantly, these claims teach the ear protection system of all other pending claims (as amended), with additional limitations, and therefore, are in condition for allowance for the same reasons as discussed above.

5

CONCLUSION

In light of the foregoing amendments and remarks, Applicant submits that the specification, drawings, and all pending claims are now in condition for allowance. Early and favorable action is accordingly solicited. Should the Examiner determine that an additional telephone interview would benefit the prosecution of this application, attorneys for the applicant may be contacted at the telephone number below.

10

Respectfully submitted,

Date: 5/18/04



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**TRANSMITTAL
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Application Number	10/020,744
Filing Date	October 30, 2001
First Named Inventor	Welse
Art Unit	2837
Examiner Name	San Martin
Attorney Docket Number	973-001

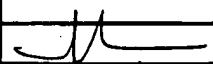
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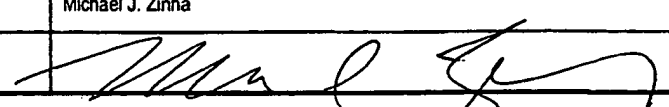
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	WARD & OLIVO
Signature	
Date	5/18/04

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PTO 04-3282 HAMT

Japanese Patent
Document No. 08-237349

EARPHONE CORD WINDER FOR PORTABLE TELEPHONE SET
[携帯電話用イヤホンコード巻取装置]

Takeshi Urawa

UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. 05/2004

Translated by: Schreiber Translations, Inc.

Bibliographic Fields
Document Identity

(19) [Publication Office]

Japan Patent Office (JP)

(12) [Kind of Document]

Unexamined Patent Publication (A)

(11) [Publication Number of Unexamined Application]

Japan Unexamined Patent Publication H08- 237349

(43) [Publication Date of Unexamined Application]

13-Sep-96

(43) [Publication Date of Unexamined Application]

13-Sep-96

(54) [Title of Invention]

EARPHONE CORD WINDER FOR PORTABLE TELEPHONE SET

(51) [International Patent Classification, 6th Edition]

H04M 1/15

B65H 75/48

[F1]

H04M 1/15

B65H 75/48 A 7620-3F

[Number of Claims]

4

[Form of Application]

FD

[Number of Pages in Document]

4

[Request for Examination]

Unrequested

(21) [Application Number]

Japan Patent Application H 07- 58049

(22) [Application Date]

22-Feb-95

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[Identification Number]

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(57) [Abstract]

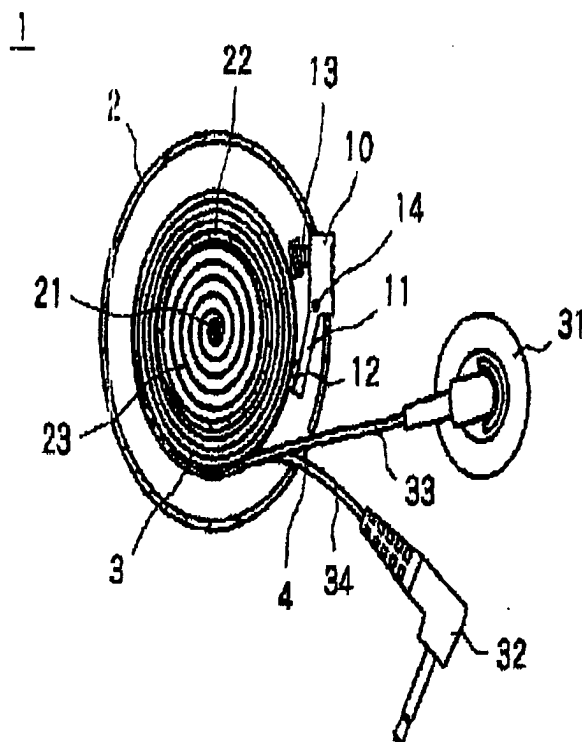
[Objective]

To provide an earphone cord winder device that would help in easy storage as well as the drawing out of the earphone cord that is used in portable phones and mobile phone sets.

[Constitution]

This earphone cord winder is provided with the spiral spring 23 which freely rotationally supports the winding reel 22 winding the earphone cord 3 in a housing case 2 and energizes the pulled out cord 3 to be unwound, the lock lever 11 and the operation piece 10. The lever 11 is freely rotationally supported to the case 2 by a pin 14 by the power of a spring 13 consisting of a compression coil spring and the tip of the lever 11 pressurizes one point of the reel 22 to prevent the reel 22 from unwinding. Then the operation piece 10 projects to the side face of the case 2 while integrated with the lever 11 and at the time of pushing this piece 10 with the tip of a finger, the lever 11 is separated from the reel 22 to rotate the reel 22 in a unwinding direction. Then, the cord 3 is wound back and at the

time of separating the finger from the operation piece 10, rotation is prevented in the state at it is.



[Claim(s)]

[Claim 1]

A winding reel that helps wind the earphone cord is supported in a freely rotatable state within the thin box like storage case and also there is a spiral spring that would retract the earphone cord in order to rewind the aforementioned earphone cord which was pulled out and we thus have an earphone cord winder for a mobile phone which is characterized by consisting of a lock lever to prevent the rotation of the said winding reel and an operating piece that moves the said lock lever in the direction of the release.

[Claim 2]

An earphone cord winder for a mobile phone as mentioned in Claim 1 of the patent wherein the cord part on the earphone side of the earphone cord and the cord on the plug side are provided in one winding reel while being pulled out from a single outlet.

[Claim 3]

An earphone cord winder for a mobile phone as mentioned in Claim 1 of the patent wherein the cord part on the earphone side of the earphone cord and the cord on the plug side are provided, and one part each of the cord is pulling out from the respective outlets.

[Claim 4]

An earphone cord winder for a mobile phone as mentioned in Claims 1, 2 and 3 of the patent wherein any the storage case is equipped such that it could be attached to a garment that was being worn.

[Description of the Invention]

[0001]

[Field of Industrial Application]

This invention is related to an earphone cord winder and in particular it pertains to a preferred earphone cord winder device while using cellular phones.

[0002]

[Prior Art]

Mobile phones or cellular phones are mainly used outdoors where there is a lot of traffic and also in different types of construction sites and since there could be a lot of surrounding noise in such areas, it might be difficult to hear what the other party is trying to say over the phone.

Because of that, until recently one would have to move to a quiet place and then would have to call placing the receiving on one ear while covering the other ear.

[0003]

Or, in this case, using an earphone makes it is very effective to hear the voice of the counterpart over the telephone and when using an earphone cord which was easily inserted into a pocket and bag, the earphone cord would get all entwined and twisted and in addition to requiring time, the earphone cord would have to be wound and bundled up again after use and since this was complicated and troublesome, it was hardly used.

[0004]

[Problems to be Solved by the Invention]

The problem that this invention proposes to solve is that when the cellular phone is used in a noisy place, using an earphone would be effective but the act of having to take out and put back the earphone cord would be troublesome.

[0005]

[Means to Solve the Problems]

This invention proposes to solve the above mentioned problem by providing a winding reel that helps wind the earphone cord is supported in a freely rotatable state within the thin box like storage case and also there is a spiral spring that would retract the earphone cord in order to rewind the aforementioned earphone cord which was pulled out and we thus have an earphone cord winder for a mobile phone which is characterized by consisting of a lock lever to prevent the rotation of the said winding reel and an operating piece that moves the said lock lever in the direction of the release.

[0006]

In addition, there are two types of structures in this winder whereby the cord part on the earphone side of the earphone cord and the cord on the plug side are provided in one winding reel while both sides of the cord portion are wound up respectively in a separate winding reel.

[0007]

Furthermore, this is highly preferred since the storage case consists of a little mounting tool by which it can be attached to garments or clothing.

[0008]

[Working Principle]

When earphone cord is pulled out, a slight rotating force is given by the coil spring that is fixed to the winding reel in the direction which rewinds the cord back and this force is held down by means of a lock lever.

When the earphone cord is pulled out to just the necessary length, although the earphone cord can be stopped using a lock lever, when the operating piece is operated in the direction of the lock lever release, the winding reel moves through the recovery force of the coil spring and the earphone cord is retracted and is stored inside the storage case.

[0009]

[Working Example(s)]

Working Example of this invention is explained on the basis of Drawing 1 and Drawing 2.

[0010]

Drawing 1 is a perspective view of the Working Example of this invention while Drawing 2 shows the internal structure of the winder device in Drawing 1.

[0011]

In one place of the side of the thin and small storage case 2, there is the pulling outlet 4 of earphone cord 3 and earphone 31 as well as plug 32 is pulled out from the pulling outlet 4 while their cord parts 33 and 34 are wound around the circular winding reel 22 which is supported by the support shaft 21 such that it is rotatable in the storage case 2.

[0012]

The compression coil spring 23 is meant for rewinding back the earphone cord 3 that has been drawing out in the winding reel 22 and while one end is fixed in the support shaft 21, the other end is fixed to the winding reel 22 and when the earphone cord 23 is drawn out, the winding reel 22 will give a rotational force in the rewinding direction through the compression coil spring 23 along with its own rotation.

[0013]

The lock lever 11 is supported in a freely rotatable state through the pin 14 in the storage case 2 using the power of the spring 13 which is made from a compression coil spring, and while the tip holds down one point of the winding reel 22, it actually prevents the winding reel 22 from rotating in the rewinding direction, and it would be desirable to stick some rubber or some other plug 12 on the tip.

When the earphone cord 3 is pulled out, it would be necessary to pull it with more strength than the force used by lock lever 11 to hold down the winding reel 22.

[0014]

The operating piece 10 is integrated to the lock lever 11 and protrudes onto the side of a storage case 2, and by pushing this operating piece 10 with the tip of one's finger, the winding reel 22 would get separated from the lock lever 11 and since the winding reel 22 rotates in the rewinding direction, the earphone cord 3 is rewound.

When the operating piece 10 is separated, lock lever 11 holds down the winding reel 22 again through the recovery force of spring 13, and by preventing the rotation, the earphone cord 3 is stopped.

[0015]

In addition, in a cellular phone as shown in Drawing 4, the length of earphone cord 3 need no longer be like that of the conventional radio and headphone stereo, and it is therefore possible to make it shorter and thus the storage case 2 could be made both thinner and smaller.

Its shape could be either round or square and furthermore, the materials used could be either synthetic resin or metal, but it is preferable to have one that is small in size and lightweight.

[0016]

~~Figure 6~~ is a drawing of the internal structure which shows a different working example of this invention, where cord 33 on the earphone side 31 and cord 34 of plug side 32 are ~~wound opposite to each other on separate winding reels 25 and 26~~ and both of these are respectively provided with lock levers 15 and 16 as well as operating pieces 17 and 18, and earphone 31 is drawing out from the outlet 41 while plug 32 is drawn out from the outlet 42 respectively.

In this case, it would be necessary to set up the winding directions of the coiled springs 27 and 28 in such a way that are mutually opposite to each other, but all other mechanisms are exactly the same as the working example in Drawing 2.

[0017]

In addition to the Working Example above, in the article of this invention as in Drawing 1, by having a mounting tool 7 that is either made from a hook 5 or a safety pin 6 or both, that is attached to the storage case 2, it is possible to attach this easily to the pockets of garments and clothes etc and thereby makes it more convenient for use.

[0018]

Or, as shown in Drawing 5, an adhesive tape is attached to the storage case 2 and this could be used by attaching it to the cellular phone 9.

[0019]

Furthermore although Drawing 2 and Drawing 3 show that the operating piece 10 and the lock lever 11 have been integrated, it is actually a separate structure which is attached by a screw etc into one unit, and when the operating piece 10 is pushed by a finger tip, power is transmitted to lock lever 11 and if the spring 13 is compressed, it does not matter even if it gets separated at the time of operation.

[0020]

[Effects of the Invention]

When the earphone cord reel of this invention is used, the earphone cord can be easily unwound and rewound and further since it does not get tangled or entwined, there is no nuisance value while it is being used.

[0021]

Furthermore, based on the fact that it is formed separately from the main equipment of the cellular phone, it is very easy to replace during repair especially when compared to the type where it is incorporated in the main body.

[0022]

And, if we have a structure where the earphone side part of the earphone cord and the plug side part are integrated into the structure of single winder reel, it would be very easy to make it since it would be of a small size and light weight and does not pose any nuisance value to portability.

[0023]

In addition if we have a structure where the earphone side part of the earphone cord and the plug side part are separated,, no matter where the winder reel is provided, the unnecessary portion of the cord is increased and it is possible to use the cord by pulling it out only to the needed length.

[0024]

Furthermore, it can be attached to a garment or clothing by means of a hook or a safety pin is therefore more convenient.

[Brief Explanation of the Drawing(s)]

[Drawing 1]

It is a perspective drawing, which shows the working Example of this invention.

[Drawing 2]

It is a plane diagram that shows the reel of the Working Example of this invention.

[Drawing 3]

It is a plane diagram which shows the winder device of a Working Example that differs from this invention.

[Drawing 4]

It is a Drawing that shows the use state of the Working Example of this invention.

[Drawing 5]

It is a drawing that shows a use state that is different from the Working Example of this invention.

[Explanation of Symbols in Drawings]

1

Earphone cord winder device

10

Operating piece

11

Lock lever

2

Storage case

22

Winding reel

23

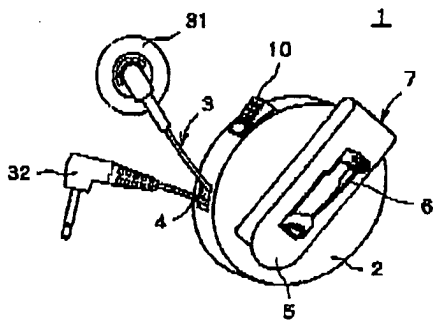
Coil spring

3

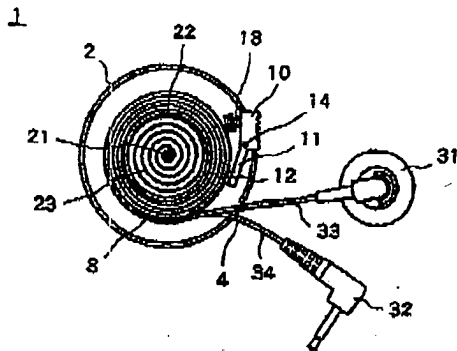
Earphone cord

Drawings

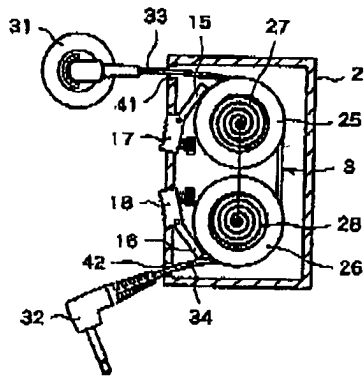
[Drawing 1]



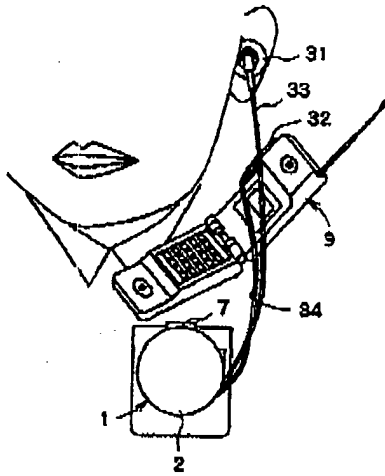
[Drawing 2]



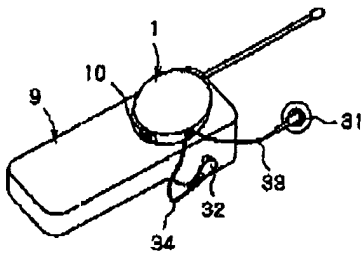
[Drawing 3]



[Drawing 4]



[Drawing 5]



PAT-NO: JP408237349A

DOCUMENT-IDENTIFIER: JP 08237349 A

TITLE: EARPHONE CORD WINDER
FOR PORTABLE TELEPHONE SET

PUBN-DATE: September 13, 1996

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APPL-NO: JP07058049

APPL-DATE: February 22, 1995

INT-CL (IPC): H04M001/15, B65H075/48

ABSTRACT:

PURPOSE: To facilitate the labor and time of putting in and out an earphone cord by providing a spiral spring, a lock lever and an operation piece so as to prevent the rotation of a winding reel by means of the lock lever and to release lock by means of the operation piece.

CONSTITUTION: This earphone cord winder is provided with the spiral spring 23 which freely rotationably supports the winding reel 22 winding the earphone cord 3 in a housing case 2 and energizes the pulled out cord 3 to be unwound, the lock lever 11 and the operation piece 10. The lever 11 is freely rotationally supported to the case 2 by a pin 14 by the power of a spring 13

consisting of a compression coil spring and the tip of the lever 11 pressurizes one point of the reel 22 to prevent the reel 22 from unwinding. Then the operation piece 10 projects to the side face of the case 2 while integrated with the lever 11 and at the time of pushing this piece 10 with the tip of a finger, the lever 11 is separated from the reel 22 to rotate the reel 22 in a unwinding direction. Then, the cord 3 is wound back and at the time of separating the finger from the operation piece 10, rotation is prevented in the state at it is.

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(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平8-237349

(43) 公開日 平成8年(1996)9月13日

(51) Int.Cl. ⁸	識別記号	庁内整理番号	F I	技術表示箇所
H 0 4 M 1/15			H 0 4 M 1/15	
B 6 5 H 75/48		7620-3F	B 6 5 H 75/48	A

審査請求 未請求 請求項の数4 F D (全 4 頁)

(21) 出願番号 特願平7-58049

(22) 出願日 平成7年(1995)2月22日

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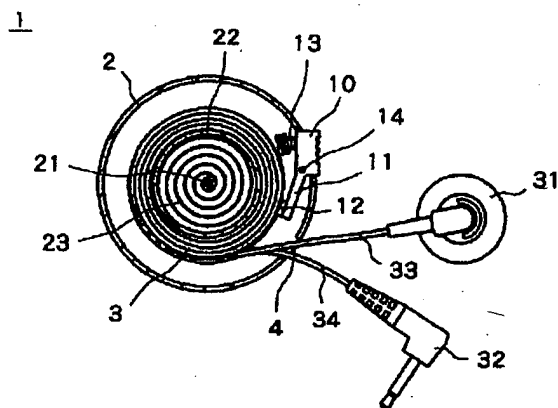
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(54) 【発明の名称】 携帯電話用イヤホンコード巻取装置

(57) 【要約】

【目的】 携帯電話に用いるイヤホンのコードの引き出しおよび収納が容易に行えるイヤホンコード巻取装置を提供する。

【構成】 薄い箱形の収納ケース2内に、イヤホンコード3を巻き取る巻取リール22を回転自在に支承するとともに、引き出されたコード3を巻き戻すよう付勢する渦巻ばね23と、巻取リール22の回転を阻止するロックレバー11と、ロックレバー11を解除方向に動かせる操作片10とを備えている。



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【特許請求の範囲】

【請求項1】 薄い箱形の収納ケース内に、イヤホンコードを巻き取る巻取リールを回転自在に支承するとともに、引き出された前記イヤホンコードを巻き戻すよう付勢する渦巻ばねと、前記巻取リールの回転を阻止するロックレバーと、前記ロックレバーを解除方向に動作させる操作片とを備えたことを特徴とする携帯電話用イヤホンコード巻取装置。

【請求項2】 イヤホンコードのイヤホン側コード部分とプラグ側コード部分とが一つの巻取リールに引き揃えて巻き取られて一つの引出口から引き出されている請求項1記載の携帯電話用イヤホンコード巻取装置

【請求項3】 イヤホンコードのイヤホン側コード部分とプラグ側コード部分とが別体の巻取リールに巻き取られており、それぞれの引出口より片方ずつコードが引き出されている請求項1記載の携帯電話用イヤホンコード巻取装置。

【請求項4】 収納ケースに衣服への装着具を設けた請求項1、2、3いずれかに記載の携帯電話用イヤホンコード巻取装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、イヤホンコードの巻取装置に係り、とくに携帯電話を用いる際において好適なイヤホンコードの巻取装置に関するものである。

【0002】

【従来の技術】携帯電話は、屋外の交通量の多いところや各種工事現場で使用することが多く、このようなところでは周囲の騒音によって電話の相手の声が聞き取りにくい。そのため、従来は静かなところに移動して電話をかけ直すか、受話器と反対側の耳を塞いで話したりしていた。

【0003】或いは、この場合、イヤホンを使って電話の相手の声を聞くことは非常に有効であるが、ポケットやバッグ等に無造作に入れられたイヤホンコードを使用するときにはイヤホンコードが絡まってほどくのし手間がかかる上、使用後もイヤホンコードを揃えて一つに束ねたりしなければならず、煩わしいため、利用されることは稀であった。

【0004】

【発明が解決しようとする課題】本発明が解決しようとする課題は、騒音の中で携帯電話を使用する場合に、イヤホンを利用することは有効であるがイヤホンコードの出し入れの手間が煩わしい、という点である。

【0005】

【課題を解決するための手段】本発明は、薄い箱形の収納ケース内に、イヤホンコードを巻き取る巻取リールを回転自在に支承するとともに、引き出されたイヤホンコードを巻き戻すよう付勢する渦巻ばねと、巻取リールの回転を阻止するロックレバーと、ロックレバーを解除方

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向に動作させる操作片とを備えた構成としたことにより、前記課題を解決するための手段とした。

【0006】また、この巻取装置には、イヤホン側コード部分とプラグ側コード部分とが一つの巻取リールに引き揃えて巻き取られる構造と、両側のコード部分がそれぞれ別体の巻取リールに巻き取られる構造の二通りがある。

【0007】更に、収納ケースに衣服への装着具を設けることにより、好適なものとなる。

【0008】

【作用】イヤホンコードを引き出すと、巻取リールに固定された渦巻ばねによって巻き戻す方向に回転力が与えられ、その力をロックレバーで押さえつける。必要な長さだけイヤホンコードを引き出すと、ロックレバーによってイヤホンコードが停止するが、操作片をロックレバー解除の方向に操作すると、渦巻ばねの復元力によって巻取リールが回転し、イヤホンコードが巻き取られて収納ケース内に収納される。

【0009】

【実施例】本発明の実施例を図1および図2に基づいて説明する。

【0010】図1は本発明の実施例を示す斜視図であり、図2は図1の巻取装置の内部構造を示している。

【0011】薄くて小さい収納ケース2の側面の一個所には、イヤホンコード3の引出口4が設けられており、イヤホン31およびプラグ32が引出口4より外に出ており、それらのコード部分33、34は引き揃えられて収納ケース2内に支軸21によって回転可能に支持されている環状の巻取リール22に巻き取られるようになっている。

【0012】渦巻ばね23は、巻取リール22を、引き出されたイヤホンコード3を巻き戻す方向に付勢するためのものであって、その一端部は支軸21に、また他端部は巻取リール22に固定されており、イヤホンコード3を引き出すと巻取リール22はその回転に伴い締め込まれる渦巻ばね23によって巻き戻す方向に回転力が与えられる。

【0013】ロックレバー11は圧縮コイルばねからなるばね13の力でピン14により収納ケース2に回転自由に支持されており、先端部が巻取リール22の一点を押さえつけ、巻取リール22が巻き戻す方向に回転することを阻止するものであり、先端部にはゴムまたはフエルト等の滑り止め片12を貼ることが好ましい。イヤホンコード3を引き出す場合には、ロックレバー11が巻取リール22を押さえつける力よりも強く引き出すことが必要である。

【0014】操作片10はロックレバー11と一体であって収納ケース2の側面に突出しており、この操作片10を指先で押すことによってロックレバー11が巻取リール22から離れ、巻取リール22が巻き戻す方向に回

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転するため、イヤホンコード3が巻き戻される。操作片10を離すと、ばね13の復元力によって再びロックレバー11が巻取リール22を押さえつけ、回転を阻止することとなり、イヤホンコード3が停止する。

【0015】また、携帯電話9においては、図4に示すように、イヤホンコード3の長さは従来のラジオやヘッドホンステレオ用のものほどは必要でないため、短くすることができ、収納ケース2も薄く小さく作ることができる。その形状は丸形、角形のどちらでも、更に、材質は合成樹脂または金属のどちらでもよいが、小型かつ軽量であるほどよい。

【0016】図3は本発明の異なる実施例を示す内部構造図であり、イヤホン31側のコード33とプラグ32側のコード34とが別体の巻取リール25、26に互いに反対回りに巻き取られ、それぞれにロックレバー15、16および操作片17、18を設けたものであり、イヤホン31は引出口41から、プラグ32は引出口42からそれぞれ引き出される。この場合は、渦巻ばね27、28の巻き方向を互いに逆の方向に設定することが必要であるが、その他の機構については、図2の実施例と全く同様である。

【0017】以上の実施例に加えて、本発明品には、図1のように、収納ケース2にフック5または安全ピン6のいずれか或いは両方からなる装着具7を付けることにより、図4に示すように衣服の胸ポケット等に容易に装着することができ、便利である。

【0018】或いは、図5に示すように、収納ケース2に粘着テープ等を付け、携帯電話9に貼着して用いてもよい。

【0019】尚、図2および図3において、操作片10とロックレバー11とは一体として示したが、別体のものであって、ビス等で一体にされていたり、または操作片10を指先で押した際にロックレバー11に力が伝わってばね13が圧縮されれば操作時以外は離れていても構わない。

【0020】

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【発明の効果】本発明のイヤホンコード巻取装置を用いると、イヤホンコードが容易に引き出されたり巻き取られたりすることができ、しかも絡まることがないため、使用時の煩わしさがなくなる。

【0021】しかも、携帯電話の機器本体とは別体に形成されていることによって、本体内に巻き込む方式に比べ、取り替えや修理の際に便利である。

【0022】そして、イヤホンコードのイヤホン側部分とプラグ側部分とを一つの巻取リールに巻き取った構成とすれば、きわめて小型且つ軽量に作られることとなり、携帯の邪魔にならない。

【0023】また、イヤホン側部分とプラグ側部分とが別々に引き出せる構成とすれば、巻取装置をどこに設置しても、コードの無駄な部分を弛ませるようなことはなく、必要な長さだけのコードを引き出して用いることができる。

【0024】さらに、フックまたは安全ピン等の装着具を付けることにより、衣服等に容易に装着することができ、一層便利である。

【図面の簡単な説明】

【図1】本発明の実施例を示す斜視図である。

【図2】本発明の実施例の巻取装置を示す平面図である。

【図3】本発明の異なる実施例の巻取装置を示す平面図である。

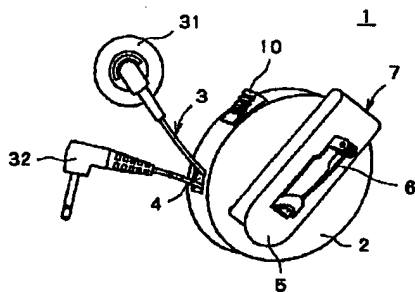
【図4】本発明の実施例の使用状態を示す図である。

【図5】本発明の実施例の異なる使用状態を示す図である。

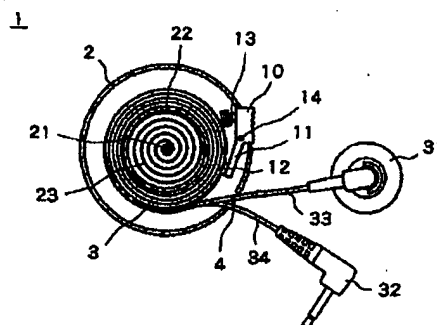
【符号の説明】

- 1 イヤホンコード巻取装置
- 2 収納ケース
- 3 イヤホンコード
- 10 操作片
- 11 ロックレバー
- 22 巻取リール
- 23 渦巻ばね

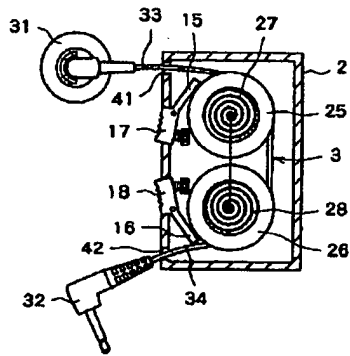
【図1】



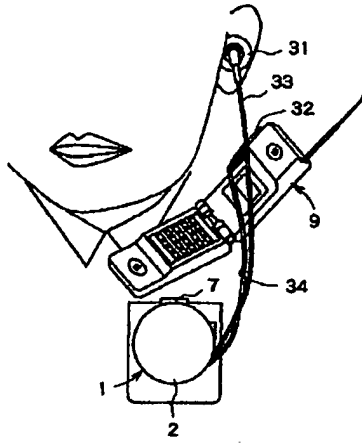
【図2】



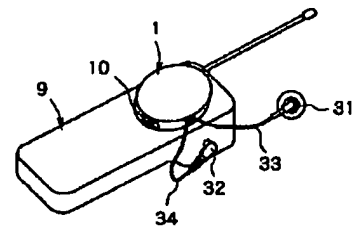
【図3】



【図4】



【図5】



LEXSEE 702 F2D 1005

**ORTHOPEDIC EQUIPMENT COMPANY, INC., AND MARRIOTT
CORPORATION, Appellants and Cross-Appellees, v. THE UNITED STATES,
Appellee and Cross-Appellant**

Appeal No. 250-77

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

702 F.2d 1005; 1983 U.S. App. LEXIS 13568; 217 U.S.P.Q. (BNA) 193

March 11, 1983

DISPOSITION: [1]**

Affirmed

LexisNexis(R) Headnotes

COUNSEL:

William D. Hall argued for the Appellant and Cross-Appellee. With him on the brief was Harry M. Saragovitz.

Thomas J. Scott, Jr. argued for the Appellee and Cross-Appellant. With him on the brief were Assistant Attorney General J. Paul McGrath, Thomas J. Byrnes and Claud A. Daigle, Jr.

JUDGES:

Markey, Chief Judge, Davis, Nichols, Kashiwa and Nies, Circuit Judges. Nies, Circuit Judge, concurring.

OPINIONBY:

PER CURIAM

OPINION:

[*1006] Both sides appeal from the judgment of the United States Claims Court * in this patent infringement suit. Appellants Orthopedic Equipment Company, Inc. (Orthopedic) and Marriott Corporation (Marriott), plaintiffs in the suit, brought this action pursuant to 28 U.S.C. § 1498 seeking compensation for the unauthorized manufacture or use by or for the United

States of a nation-wide material handling system which is alleged to infringe claims 1, 2, 6, and 7 of United States Letters Patent No. 3,304,416 (the Wolf patent), entitled "Business Order Control System Apparatus." They filed administrative claims for compensation with several Department of Defense agencies for infringement of the Wolf patent. The first of these administrative claims [**2] was filed in July 1976; none of the claims has ever been denied. The present suit was filed in the United States Court of Claims on May 6, 1977. Then Trial Judge Colaianne, after a trial, issued an opinion and findings holding that the invention set forth in claims 1, 2, 6 and 7 of the Wolf patent would have been obvious within the meaning of 35 U.S.C. § 103 and that the claims were therefore invalid. He either rejected or declined to pass upon other defenses raised by the United States. But he did decide that the plaintiffs were entitled to collect \$1,181.25 as part of the reasonable and necessary costs of a certain deposition. The final judgment was that, upon payment by the United States to the plaintiffs-appellants of \$1,181.25 as part of those deposition costs, the petition was to be dismissed. Plaintiffs appeal from the determination of invalidity, and defendant appeals from the award of deposition costs and also from the judge's failure to consider, or his rejection of, most of the Government's other defenses.

* Pursuant to the order of this court dated October 4, 1982, the Claims Court thereafter issued a final judgment in accordance with Trial Judge Colaianne's recommended decision of August 14, 1981. We treat both sides' exceptions to that decision as an appeal and cross-appeal from that judgment. Appellants, plaintiffs in the

Court of Claims, filed their exceptions first and we designate them appellants and cross-appellees.

[**3]

Because we agree with Judge Colaianne's reasons for his decision that the claims were invalid for obviousness, we confine our discussion of invalidity to those points and do not consider the United States' contentions that invalidity can be reached on other grounds. On the question of obviousness (Part I *infra*) our opinion incorporates, for the most part, Judge Colaianne's opinion. We also consider (Part II *infra*) the issue of deposition costs.

I -- Obviousness

Appellants accuse the appellee of infringing claims 1, 2, 6, and 7 of the patent in suit. Claims 1 and 2 are very similar to one another. Likewise, claims 6 and 7 are very similar to each other. The main differences between the claims are the differences which exist between these two similar groups. The parties agreed at trial to treat claims 2 and 7 as representative of their respective groups. This convention will also be followed in this opinion. However, should a peculiar aspect of either claim 1 or claim 6 affect the outcome of the determination of validity, then this fact will be emphasized.

[*1007] The Claims

Wolf claims 2 and 7, presented in subparagraph form with the sequencing [**4] of the claim elements slightly rearranged from the sequencing found in the patent itself, are as follows:

Claim 2

(a)(1) An electrical system

(2) for controlling the operation of a business,

(b)(1) comprising

(c)(1) a plurality of order stations,

(d)(1) means

(2) at each of said order stations

(3) for generating coded messages corresponding to the orders entered at said station,

(e)(1) a central station

(2) connected for control in turn from any of said order stations,

(f)(1) means

(2) for programming the operation of each order station to cause the transmission of the messages,

(3) in orderly fashion,

(4) to the central station,

(g)(1) a plurality of work stations

(2) at which are to be performed respective items of work called for by said messages,

(h)(1) means

(2) at said control station

(3) for recording the messages as received,

(4) and for computing numerical information

(5) based on the content of said messages,

(i)(1) means

(2) for relaying selected portions of said messages to respective ones of said work stations,

[**5]

(j)(1) and means

(2) at each work station,

(3) responsive to the relayed message portions,

(4) for providing a visual display

(5) of order information pertinent to that work station.

Claim 7

- (a)(1) A remote control
(2) and computing
(3) system
(4) for mercantile operations
- (b)(1) comprising
(c)(1) work stations,
(d)(1) at least one order station,
(2) remote from said work stations,
- (e)(1) and a central station;
(f)(1) remotely controllable
(2) order registering equipment
(3) at said central station
- (g)(1) means connecting
(2) said order station to said equipment
(3) to register therein signals representing items of work to be performed;
- (h)(1) automatic means
(2) associated with said central station
(3) for translating said signals into a registrable code
(4) and for appending thereto codes representative of each work item;
- (i)(1) and a calculator control
(2) led by said automatic means
(3) for registering the items of work and price data individual thereto
- (4) and for computing said data to provide an output total;
[**6]
- (j)(1) and means
(2) associated with said central station
(3) for transferring portions of said signals selectively to respective work stations
[*1008] (4) to control the manifestation thereof of such work items for processing at said stations[.]
- (k)(1) apparatus
(2) at each work station
(3) for registering
(4) and intelligibly manifesting
(5) the items of work to be performed, as called for by said signals[.]
- nl The rearranged sequencing and the subparagraphing is superimposed on the claims of the patent solely for the purpose of facilitating discussions involving the claims. The superimposition permits a precise identification of the various claim elements. It is a more detailed location scheme than the column and line-number scheme which one finds in patents. The rearranged sequencing has no bearing on the patentability of these particular claims. The following shorthand will be used in this opinion: Claim 2(a)(1), or element 2(a)(1), shall refer to subparagraph (a)(1) of claim 2 of the Wolf patent, i.e., "An electrical system."
- [**7]
The Nonobvious Subject Matter Requirement of 35 U.S.C. § 103
The traditional test, enunciated in *Graham v. John Deere Co.*, 383 U.S. 1, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966), for § 103 nonobviousness requires the factfinder to make several determinations. The test provides:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved need, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. [383 U.S. at 17-18.]

Scope and Content of the Prior Art Summarized

Much of the prior art in the trial record consists of United States Letters Patent which were considered by the Patent and Trademark Office (PTO) during the prosecution of the Wolf patent. [**8] These patents for the most part reside within the art of information processing system hardware. A number of them draw upon the technology found in telephone line-switching devices. The technology embodied in the information processing and telephone fields tends to evolve rapidly in response to prior and concurrent developments.

The individual patents themselves disclose one or more, but less than all, of the separate Wolf claim elements. Their combined teachings disclose all of the Wolf claim elements. Several of these patents each show how to combine two or more of the Wolf claim elements. They demonstrate the facility with which the various means identified in the Wolf claims can be made to interface with each other in order to form the desired information processing devices.

The Relevant Art of the Invention in Suit

The claims in suit provide a convenient starting point for determining the relevant art. The significant claim elements which combine to form the claims in suit were well-known in the prior art as of the time of the Wolf filing date. Thus nonobviousness of these claims would arise only if they embody a combination of these well-known elements that [**9] was not obvious to one of ordinary skill in the art. One factor bearing on the determination of the relevant art is the type of skill required to understand the disclosure of the Wolf patent, which relates to information processing hardware. Beyond a rudimentary knowledge of electromechanical

devices, one should be familiar with the workings of information processing systems hardware.

One of skill in the art of designing information processing systems hardware at the time of the Wolf filing date would have been familiar with telephone line-switching technology. This conclusion is apparent from the Andrews-Vibbard n2 disclosure, the Gimpel n3 disclosure, and is consistent with the fact that the technology used for the routing of signals in the early models of information processing systems hardware was borrowed from telephone line-switching technology.

n2 United States Letters Patent No. 2,977,048.

n3 United States Letters Patent No. 2,987,704.

A second factor bearing on the determination of the relevant [**10] art is the type of art applied to the claims by the PTO. As already [**1009] noted, much of this art deals with information processing systems hardware and telephone line-switching technology.

In determining the relevant art of the claims in suit one looks to the nature of the problem confronting the inventor. *Weather Engineering Corp. of America v. United States*, 222 Ct. Cl. 322, 614 F.2d 281, 287 (Ct. Cl. 1980). The appellants' expert, when asked to state the concept embodied in these claims that was not already present in the prior art as of the filing date of Wolf, said:

The concept of the message identifying an item of work being transmitted through a central station -- or is transmitted to a central station, and then the use of the item identifier to route the message onto an appropriate work station with the ability, at the central station, to also perform numerical computations where the -- at least some of the operands for that computation are also determined by the item description code entered at the work station, or -- at the order station. n4

In other words, appellants allege that one source of the patentability of the claims in suit is the way [**11] that the apparatus, as defined by the Wolf claims, uses the coded input information to make two separate types of decisions without the aid of direct human intervention at the time when the decisions are made. The first determination involves selecting price information from a data storage apparatus and appending the price information to the item input information. The Wolf

system looks at the item code, and based on this code it is able to pick out the price of this item from the price information stored in the memory registers of the central station. It then associates this price information with the item code in all subsequent processing of the item input information. The hardware employed to perform this selection was well-known in the art of information processing systems hardware design as of the filing date of Wolf.

n4 Trial transcript, pp. 87-88.

The second determination involves selecting the appropriate route for transmission of the coded input information to the proper work station, as well as [**12] to the calculator for numerical computations. The system's route selection is made depending upon the identity of the coded input information. The hardware employed to perform this selection was well-known in the art of designing telephone line-switching hardware.

In view of the foregoing factors, it would seem that one can come no closer to pinpointing the relevant art of the Wolf claims than by choosing the art of information processing systems hardware. We conclude that the relevant art of the Wolf patent claims resides in the field of information processing systems hardware.

Additional support for this conclusion comes from the fact that the appellants chose as their chief witness a person whose primary experience was in the computer hardware field, n5 which is the major component of information processing systems hardware. Appellants' assertion of warehousing as the relevant art is unpersuasive. In defining the significance of the invention, appellants' chief witness, Mr. Nikolai, relied on his experience in the computer field, not on any expertise in the field of warehousing. In fact, Mr. Nikolai did not possess any expertise in the warehousing art, yet the appellants [**13] advanced his testimony in their rebuttal of the appellee's defense of invalidity for lack of nonobviousness of the Wolf claims. If the appellants truly believed that the relevant art was warehousing, it appears reasonable to expect that they would have sought to rebut the defendant's § 103 charge of obviousness in the art of information processing systems hardware by demonstrating the nonobviousness of the claims in the art of warehousing. To do the latter appellants could not advance the testimony of Mr. Nikolai, who [*1010] was totally unfamiliar with the warehousing art. However, the appellants' choice of Mr. Nikolai was not in fact ill-advised; their actions speak louder than their words in this instance, and their actions bolster the conclusion that the relevant art is in the field of information processing systems hardware.

n5 Mr. Nikolai testified: "My experience at Univac in the early days involved exposure to digital computer hardware, digital communication hardware."

*Section 103 Defense [**14] Based on Nelson-Robinson and Andrews-Vibbard*

The one of appellee's § 103 defenses that was accepted by the trial judge is based upon the combined teachings of two United States Letters Patents, Nos. 1,974,191 and 2,977,048.

United States Letters Patent No. 1,974,191 entitled, "Merchandise Control System," was filed by Martin L. Nelson and Harold C. Robinson on April 18, 1932 (the Nelson-Robinson patent). It was classified by the PTO in class 178, subclass 4, and issued on September 18, 1934. It was not considered by the PTO during the prosecution of the claims in suit.

The Nelson-Robinson apparatus includes both order stations and work stations. The work stations perform several functions, namely: credit checks, inventory record monitoring, and transaction documentation. Nelson-Robinson envisions a customer bringing merchandise he wants to purchase to a sales clerk at an order station. Attached to the merchandise is a merchandise display card which contains information coded as a pattern of perforations. The sales clerk operates a transmitter which receives the punched merchandise display card together with a sales clerk's card and a cashier's card, each of the three [**15] cards containing information in the form of punch codes. The transmitter in effect reads the punched information by completing certain circuits through the punched holes. Electric signals then activate various other devices at the work stations, depending upon the circuit connections made in the transmitter. A printing machine, located at the work station where the credit checks are made, prints out information pertinent to the sales transaction. A punch card machine, located at the inventory record room, punches out an inventory card for the purchased merchandise. Information concerning item description, quantity, and price is transmitted to appropriate adding machines which keep running totals of item quantities and dollar sales volume, and this information can be visually displayed on a printed page.

The Nelson-Robinson apparatus discloses all the elements of the claims in suit except the central station and certain elements associated with the central station. In Wolf's claim 2, for example, the Nelson-Robinson apparatus lacks elements (e), (f), and (h)(3). It also lacks elements (e), (f), (g), (h), (i)(3), and (j)(2) of Wolf's claim 7.

United States Letters Patent No. [**16] 2,977,048, entitled, "Automatic Calculator," was filed by Ernest G. Andrews and Edward L. Vibbard on December 17, 1946 (the Andrews-Vibbard patent). It was classified by the PTO in class 235, subclass 162. This is the same class as the Wolf patent, but a different subclass. Andrews-Vibbard issued on March 28, 1961, but was never considered by the Patent Office during the prosecution of the claims in suit.

The Andrews-Vibbard described apparatus is an electrical computing device of some sophistication which has provisions for storing results of intermediate calculations and later accessing those results for use as inputs for further calculations. The input information is coded onto perforated paper tapes. The type of calculation to be performed by the machine, and the timing of this performance in relation to other calculations, is controlled by a separate coded perforated tape called the master control tape. This tape contains the operating commands which permitted the apparatus to perform its basic addition and subtraction operations in a way that enabled it to do multiplication and division calculations, and ultimately to arrive at solutions to ballistic equations.

The [**17] Andrews-Vibbard apparatus, though not primarily a data storage or memory device, nonetheless did perform a limited storage function during the course of its [**1011] calculation procedure. Moreover, as disclosed, the apparatus is capable of storing information on a paper tape for selective accessing by a computing device. The selection process was accomplished by means of telephone line-switching hardware, which Andrews-Vibbard teaches was well-known to those skilled in the art of early information processing systems hardware design. The patent in suit relies on an identical data storage arrangement for its price information. In addition, the Andrews-Vibbard apparatus satisfies all of the central station requirements of the claims in suit. The following claim 2 elements can be found in Andrews-Vibbard: (e), (f), (h), and (i). The following claim 7 elements can be found in Andrews-Vibbard: (e), (f), (g), (h), (i), and (j).

The claims in suit make considerable use of means language which reads broadly on the devices disclosed in the prior art. The structural elements or devices disclosed in the Wolf specification that perform the functions defined in the means portions of [**18] the claims were each well-known in the prior art at the time of the Wolf invention, n6 as is amply demonstrated by Nelson-Robinson and Andrews-Vibbard. Thus, the patentability of the claims is not derived from the structural elements disclosed in the specification. The only difference between these references and the claims is that neither reference alone discloses the precise

combination of elements claimed in the Wolf patent. Thus, the patentability of the claims must stem from the alleged fact that the specific combination of claim elements in Wolf was not disclosed in the prior art and the additional allegation that the specific combination of claim elements was nonobvious to one of ordinary skill in the art.

n6 The appellants conceded this fact below.

The appellants have argued that, not only would one of ordinary skill not know how to arrive at the claimed combination of elements, but that the appellee failed altogether to prove the level of ordinary skill in the art which pertains to the Wolf claims. [**19] This deficiency, it is said, makes it impossible to state one way or the other what one of ordinary skill in the art was capable of doing, or why in light of such skill such a person might have found the claimed invention lacking in nonobviousness.

Level of Skill in the Art

Some of the factors which have been considered in evaluating the level of ordinary skill in the art appear in the following excerpt from *Jacobson Bros., Inc. v. United States*, 206 Ct. Cl. 518, 512 F.2d 1065, 185 U.S.P.Q. 168 (Ct. Cl. 1975):

The various prior art approaches employed, the types of problems encountered in the art, the rapidity with which innovations are made, the sophistication of the technology involved, and the educational background of those actively working in the field are among the factors which will oftentimes aid in developing a picture of what is the level of skill of the ordinary person in an art. Considerations such as commercial success and the failure of others, characterized as "secondary" in *Graham*, are nonetheless invaluable as real-life indicia * * * of the level of skill in the art * * *.

The appellee's proof on the issue of the level of skill in [**20] the art consists of the following: (1) The evidence adduced in support of its § 102 defenses (defenses the trial judge prohibited on procedural grounds); (2) the prior art patents; and (3) the testimony and educational qualifications of the witnesses who were working in the art of information processing systems hardware prior to May 26, 1958.

The evidence adduced in support of the § 102 defenses (the SAGE defense and the Air Force defense) n7 can be probative on the issue of the level of skill in the pertinent art even if it be considered inadequate to establish the existence of a § 102 defense (an [*1012] issue we do not reach). There is no distinction in this regard between § 102(a) proofs, *Simmonds Precision Prods., Inc. v. United States*, 153 USPQ 465, 468 (Ct.Cl. Trial Div. 1967) (case settled by stipulation of judgment for plaintiff), and § 102(g) proofs, *Int'l Glass Co. v. United States*, 187 Ct. Cl. 376, 408 F.2d 395, 161 USPQ 116 (Ct.Cl. 1969). Moreover, *Jacobson, supra*, leaves no doubt about the probativeness of prior art or the educational backgrounds of those working in the field.

n7 SAGE is an acronym for the Semi-Automatic Ground Environment air defense system. The other air force system mentioned is the Air Force's early AUTODIN system defense. These are both adverted to in more detail in the findings below.

[**21]

In terms of the level of skill in the art at the time of the Wolf filing date, we accept the trial judge's finding that the evidence demonstrated the following facts: -- Those skilled in the art were able to coordinate specific input information with related stored data and then route this combined information based upon the original input information. It was within the level of skill in the art to conduct a system capable of performing calculations on the input information before associating it with the related stored data. It was also possible to have the calculations performed on the combined input information and stored data, and then route the calculation results in accordance with the initial input information. The level of skill had reached a point where all of the basic information transfer and manipulation techniques, e.g., accessing stored data from memory devices based on input information, and routing information based upon input information, were completely machine controllable. No human intervention was required in the systems which those skilled in the art of information processing hardware were capable of building at the time of the invention in suit. The [*22] advances being made in the level of skill in the art were primarily confined to improving the speed, reliability, and storage and handling capacities of the hardware. Electronic devices were replacing the electromechanical devices. The individuals working in the art were of above average intelligence and educational training. Many possessed advanced university degrees.

The Claims in Suit Lack Nonobviousness

The question of nonobviousness is a simple one to ask, but difficult to answer. The person of ordinary skill in the art at the time of the patentee's invention, which in this case is May 26, 1958, is presumed to have before him all of the relevant prior art. As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be nonobvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze [**23] of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law.

Mr. Bloch, the expert witness engaged by the appellee, testified that the claimed invention would be obvious to one of ordinary skill in the art at the time of Mr. Wolf's invention date. The testimony of this witness on this point consisted of conclusions without supporting explanations. The trial judge considered that the lack of supporting explanations was an omission which detracted from the persuasiveness of the conclusions of Mr. Bloch. Nonetheless, the court below held that the testimony of this witness, when combined with other evidence, was sufficient to constitute a prima facie demonstration of obviousness pursuant to 35 U.S.C. § 103.

In rebuttal of this prima facie demonstration of obviousness, the appellants offered the testimony of Mr. Nikolai, a witness experienced on matters of patentability, though not a person of ordinary skill in the art of information processing systems hardware during the relevant time period. Mr. Nikolai [**24] testified that it would not be obvious to one of ordinary skill in the art to combine the Nelson-Robinson apparatus with the Andrews-Vibbard apparatus, both cited by the appellee, to achieve the result [*1013] of the claims in suit. Building upon this point, appellants allude to the unlikelihood of a retail business using an apparatus like Andrews-Vibbard because of its enormous size, cost, and complexity in comparison to the needs of the retail businessman. However, Mr. Nikolai did not testify that it would not have been obvious to combine the elements found in the disclosures of Nelson-Robinson and Andrews-Vibbard and thereby arrive at the combination of elements recited in the claims in suit. There is a distinction between trying to physically combine the two separate apparatus disclosed in two prior art references

on the one hand, and on the other hand trying to learn enough from the disclosures of the two references to render obvious the claims in suit. Mr. Nikolai's testimony touched upon the former, but ignored the latter.

Claims may be obvious in view of a combination of references, even if the features of one reference cannot be substituted physically into the structure [**25] of the other reference. *In re Andersen*, 55 C.C.P.A. 1014, 391 F.2d 953, 958, 157 USPQ 277, 281 (CCPA 1968). What matters in the § 103 nonobviousness determination is whether a person of ordinary skill in the art, having all of the teachings of the references before him, is able to produce the structure defined by the claim. *In re Twomey*, 42 C.C.P.A. 742, 218 F.2d 593, 104 USPQ 273, 275 (CCPA 1955). The fact that features of one reference cannot be substituted into the structure of a second reference may indicate that the claims were nonobvious in view of the combined teachings of the two references. But this is not necessarily so, as *Anderson, supra*, makes clear. The same can be said regarding a complete mechanical misfit between two separate patented devices when the combination is alleged to demonstrate the obviousness of patent claims. But Mr. Nickolai's testimony does not address these points. Rather, he raises only the point that it was not likely that the Andrews-Vibbard apparatus would be integrated into the Nelson-Robinson apparatus by one of ordinary skill in the art. This may be so for reasons of economic feasibility, but not for any want of technological [**26] feasibility. The combination of these two inventions does not make good economic sense, but there is no mismatch between their technologies.

In other words, the fact that the two disclosed apparatus would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter fact is telling on the issue of nonobviousness.

The failure of appellants to show the existence of a long-felt need for the patented device amply explains why no businessman would undertake to literally combine the Nelson-Robinson and Andrews-Vibbard apparatus. However, this does not indicate any technological incompatibility between these two prior art defenses. Indeed, as the trial judge correctly found, it appears quite feasible both economically and technologically, to combine the *several elements* comprising the Nelson-Robinson and Andrews-Vibbard devices to arrive at the claims in suit. Moreover, it appears that to do so would have been obvious to one of ordinary skill in the art at the time Wolf made his invention.

In sum, [**27] Judge Colaianni's conclusion of obviousness, which we accept, rests on the testimony of Mr. Bloch regarding the disclosures of the Nelson-Robinson and Andrews-Vibbard patents, and the exhibits and testimony offered by the appellee in support of its prohibited § 102 defenses. Moreover, the inability of the appellants to effectively undermine the foregoing evidence or to present evidence on such factors as long-felt need, teaching away in the prior art, the failure of others, and commercial success, leaves the appellee's *prima facie* case of obviousness unshaken.

II -- Deposition Costs

This part of the opinion considers the deposition costs of appellants' expert witness. Judge Colaianni found in his opinion [*1014] below that the cross-appellant had earlier offered to pay the reasonable and necessary expenses associated with such a deposition, and that the judge had previously determined (in his order of August 10, 1979) the amount of money which defendant had previously obligated itself to pay; in the judge's view, he had determined the dollar amount of the costs which the defendant voluntarily had offered to pay in order to secure permission to depose Mr. Nikolai. Since [**28] the cross-appellant continued to dispute \$1,181.25 of the amount of the judge's dollar determination, an amount which to this day remains unpaid, the judge thereafter concluded as a matter of law that the defendant's offered payment was overdue. This order was reviewed by the Court of Claims in its order dated June 26, 1981. In this order the court stated:

In preparing his ultimate report, the trial judge should then treat the costs issue (when there is one) in the same manner as all substantive legal issues in the case, *i.e.*, he should make proposed findings of fact and conclusions of law on the cost issue.

In his opinion below, Judge Colaianni said: "Neither the parties nor I ever anticipated that this dispute as to the amount of the costs presented a triable issue. It began purely as a matter incidental to discovery. Both parties were silent on this matter in their posttrial briefs and proposed findings of fact. There is no evidence in the trial record upon which to base factual findings, nor, in view of the court's June 26, 1981, order, are there any legal issues left to be resolved. My original determinations were based upon the statements of counsel [**29] and my own personal knowledge of the events. All of this information appears in my orders and the related motions of the parties. These orders are dated: January 24, 1979; March 23, 1979; August 10, 1979; April 24, 1981; May 11, 1981. Thus, I reaffirm the conclusion of my August 10, 1979, order as to the

\$1,181.25 amount which the defendant promised to pay to the plaintiffs as part of the reasonable and necessary costs of the deposition in question."

We are satisfied that Judge Colaianni's decision on this issue (together with his finding on the point) met the essential requirement of the Court of Claims order, *supra*, and, having thoroughly reviewed his orders and memoranda as well as the numerous related motions and responses by both parties, we accept his determination both as to the amount due and the circumstances giving rise to the determination of that particular amount. Our review of the record reveals a history of poor relations between these parties over matters pertaining to discovery, apparently having begun with appellants' refusal to answer certain interrogatories by the Government. This refusal was confirmed by order of Judge Colaianni on December 22, 1978, [**30] in which he stated that "to require plaintiffs to answer these interrogatories would, in effect, be ordering plaintiffs to prepare defendant's case for it. That is hardly within the purpose or scope of the discovery rules."

The Government did not appeal that refusal, but then sought, and was granted, the right to depose appellants' expert witness Mr. Nikolai, claiming that this deposition was its only remaining avenue for gaining information it needed. Those deposition costs are here at issue as a result of the trial judge's decision both that the Government had earlier agreed to pay reasonable and necessary expenses associated with this deposition and also that a portion of the deposition was used by the Government to "develop" its case. Those determinations are supported by the record and have not been shown by the cross-appellant to have been either erroneous in law or abuses of discretion. *Cf.* Fed. R. Civ. P. 26 (c).

III -- Conclusion

Appellants are entitled to collect \$1,181.25 as part of the reasonable and necessary costs of the deposition of Mr. Nikolai. The claims in suit are invalid for

obviousness per 35 U.S.C. § 103 (1976), and accordingly the petition [**31] was properly dismissed subject to the Government's payment of \$1,181.25 to appellants.

Affirmed.

CONCURBY:

NIES

CONCUR:

[*1015] NIES, Circuit Judge, concurring.

I agree with the majority that the judgment of the Claims Court that the asserted claims of the Wolf patent are invalid under 35 U.S.C. § 103 should be affirmed. In my view, the majority adopts portions of the trial judge's opinion which are unnecessary to the issues on appeal and, thus, to a great extent the majority's opinion is dictum.

Appellants make no attack on use of Andrews-Vibbard as a prior art reference apart from the fact that it is a large, expensive, and specialized machine which a businessman would not have considered a practical tool to use in connection with selection of the items of merchandise ordered by a customer or for preparing a pricing invoice. I agree with the majority that this argument does not destroy the relevancy of Andrews-Vibbard.

The trial judge found that the apparatus disclosed in Nelson-Robinson and Andrews-Vibbard can be physically combined. Appellants do not show any error in this conclusion. In view of the teachings of these prior art references and the problem confronting [**32] the inventor, the trial judge did not err in holding that the subject invention would have been obvious to one of ordinary skill in the art on the record before him.

LEXSEE 231 USPQ 81

**HYBRITECH INCORPORATED, Appellant, v. MONOCLONAL ANTIBODIES,
INC., Appellee**

Appeal No. 86-531

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

802 F.2d 1367; 1986 U.S. App. LEXIS 20347; 231 U.S.P.Q. (BNA) 81

September 19, 1986

PRIOR HISTORY: [1]**

Appealed from: U.S. District Court for the Northern District of California. Judge Conti.

DISPOSITION:

Reversed and Remanded.

LexisNexis(R) Headnotes

COUNSEL:

Douglas E. Olson, Lyon & Lyon, of Los Angeles, California, argued for Appellant. With him on brief were James W. Geriak and Bradford J. Duft.

David J. Brezner, Flehr, Hohback, Test, Albritton & Herbert, of San Francisco, California, argued for Appellee. Barry E. Britschneider and Herbert I. Cantor, of Washington, District of Columbia, of Counsel.

JUDGES:

Rich, Davis, and Smith, Circuit Judges.

OPINIONBY:

RICH

OPINION:

[*1368] RICH, Circuit Judge.

This appeal is from the August 28, 1985, decision of the United States District Court for the Northern District

of California, 623 F. Supp. 1344, 227 U.S.P.Q. (BNA) 215, in favor of defendant Monoclonal Antibodies, Inc. (Monoclonal) holding that all 29 claims of plaintiff's patent No. 4,376,110 entitled "Immunometric Assays Using Monoclonal Antibodies" ('110 patent), issued to Dr. Gary S. David and Howard E. Greene and assigned to Hybritech Incorporated (Hybritech), are invalid as anticipated under 35 USC § 102(g), for obviousness under § 103, and under § 112 first [**2] and second paragraphs. We reverse and remand.

Background

Vertebrates defend themselves against invasion by microorganisms by producing antibodies, proteins which can complex with the invading microorganisms and target them for destruction or removal. In fact, any foreign molecule of sufficient size can act as a stimulus for antibody production. Such foreign molecules, or antigens, bear particular sites or epitopes that represent antibody recognition sites. B cell lymphocytes, the cells that actually produce antibodies, recognize and respond to an epitope on an antigen by reproducing or cloning themselves and then producing antibodies specific to that epitope. Even if the antigen is highly purified, the lymphocytes will produce antibodies specific to different epitopes on the antigen and so produce antibodies with different specificities. Furthermore, because the body is exposed to many different antigens, the blood of a vertebrate will contain antibodies to many different antigenic substances.

Scientists and clinicians have long employed the ability of antibodies to recognize and complex with antigens as a tool to [*1369] identify or label particular cells or molecules [**3] and to separate them from a mixture. Their source of antibodies has been primarily the serum separated from the blood of a vertebrate

immunized or exposed to the antigen. Serum, however, contains a mixture of antibodies directed to numerous antigens and to any number of epitopes on a particular antigen. Because such a mixture of antibodies arises from many different clones of lymphocytes, it is called "polyclonal."

Recent technological advances have made it possible to isolate and cultivate a single clone of lymphocytes to obtain a virtually unlimited supply of antibodies specific to one particular epitope. These antibodies, known as "monoclonal antibodies" because they arise from a single clone of lymphocytes, are produced by a relatively new technology known as the hybridoma. Hybridomas are produced by fusing a particular cancer cell, the myeloma cell, with spleen cells from a mouse that has been injected or immunized with the antigen. These fusions are isolated by transferring them to a growth fluid that kills off the unfused cancer cells, the unfused spleen cells dying off by themselves. The fused hybrid spleen and myeloma cells, called hybridomas, produce antibodies to the [**4] antigen initially injected into the mouse. The growth fluid containing the hybridomas is then diluted and put into individual test tubes or wells so that there is only one hybridoma per tube or well. Each hybridoma then reproduces itself and these identical hybridomas each produce identical monoclonal antibodies having the same affinity and specificity. In this way, a virtually unlimited supply of identical antibodies is created, directed to only one epitope on an antigen rather than, as with polyclonal antibodies, to many different epitopes on many different antigens.

In addition to the specificity of antibodies to particular epitopes discussed above, antibodies also have a characteristic "sensitivity," the ability to detect and react to antigens. Sensitivity is expressed in terms of "affinity:" the greater an antibody's ability to bind with a particular antigen, the greater the antibody's affinity. The strength of that antibody-antigen bond is in part dependent upon the antibody's "affinity constant," expressed in liters per mole, for the antigen.

Immunoassays, the subject matter of the '110 patent, are diagnostic methods for determining the presence or amount of antigen in [**5] body fluids such as blood or urine by employing the ability of an antibody to recognize and bind to an antigen. Generally, the extent to which the antibody binds to the antigen to be quantitated is an indication of the amount of antigen present in the fluid. Labelling the antibody or, in some cases, the antigen, with either a radioactive substance, I125, or an enzyme makes possible the detection of the antibody-antigen complex. In an extreme case, where the fluid sample contains a very low level of the antigen, binding might not occur unless the antibodies selected or "screened" for the procedure are highly sensitive.

In the case of a "competitive" immunoassay, a labelled antigen reagent is bound to a limited and known quantity of antibody reagent. After that reaction reaches equilibrium, the antigen to be detected is added to the mixture and competes with the labelled antigen for the limited number of antibody binding sites. The amount of labelled antigen reagent displaced, if any, in this second reaction indicates the quantity of the antigen to be detected present in the fluid sample. All of the antigen attached to the antibody will be labelled antigen if there is no antigen [**6] in the test fluid sample. The advantage of this method is that only a small amount of antibody is needed, its drawback, generally, that the system must reach equilibrium, and thus produces results slowly.

In the case of a "sandwich" assay, otherwise known as an immunometric assay, the latter being a term coined by Dr. Lawton Miles in 1971, a quantity of unlabelled antibody reagent is bound to a solid support surface such as the inside wall of a test tube containing a complex of the fluid sample [*1370] containing the antigen to be detected and a labelled *antibody* reagent. The result is an insoluble three part complex referred to as a sandwich having antibody bread and antigen filling. This figure is illustrative of the sandwich concept:

[SEE ILLUSTRATION IN ORIGINAL]

The advantage of the sandwich assay is that it is fast and simple, its drawback that enormous quantities of antibodies are needed.

Hybritech

Hybritech, started in 1978 and joined thereafter by coinventors Green and Dr. David, has, since 1979, been in the business of developing diagnostic kits employing monoclonal antibodies that detect numerous antigens and thus a broad range of conditions [**7] such as pregnancy, cancer, growth hormone deficiency, or hepatitis. Examples of antigens include influenza viruses, immunoglobulin E (IgE) which indicates allergic reaction, human chorionic gonadotropin (HCG) which indicates pregnancy, and prostatic acid phosphatase (PAP) which indicates prostate cancer, to name a few. Dr. Adams, a business-experienced scientist, joined the company in May 1980 as head of research and development. The '110 patent, application for which was filed August 4, 1980, issued March 8, 1983, with claims defining a variety of sandwich assays using monoclonal antibodies. Claim 19, apparently the broadest of the twenty-nine in the patent, is directed generally to a sandwich assay and reads (emphasis ours):

19. *In an immunometric assay to determine the presence or concentration of an antigenic substance in a sample of a*

fluid comprising forming a ternary complex of a first labelled antibody, said antigenic substance, and a second antibody said second antibody being bound to a solid carrier insoluble in said fluid wherein the presence of the antigenic substance in the samples is determined by measuring either the amount of labelled antibody bound to [**8] the solid carrier or the amount of unreacted labelled antibody, *the improvement comprising* employing monoclonal antibodies having an affinity for the antigenic substance of at least about 10^{<8>} liters/mole for each of said labelled antibody and said antibody bound to a solid carrier.

Claim 1, directed particularly to a reverse sandwich assay, explained *infra*, reads:

1. A process for the determination of the presence of [sic, or] concentration of an antigenic substance in a fluid comprising the steps:

(a) contacting a sample of the fluid with a measured amount of a soluble first monoclonal antibody to the antigenic substance in order to form a soluble complex of the antibody and antigenic substance present in said sample, said first monoclonal antibody being labelled;

(b) contacting the soluble complex with a second monoclonal antibody to the antigenic substance, said second monoclonal antibody being bound to a solid carrier, said solid carrier being [*1371] insoluble in said fluid, in order to form an insoluble complex of said first monoclonal antibody, said antigenic substance and said second monoclonal antibody bound to said solid carrier;

(c) [**9] separating said solid carrier from the fluid

sample and unreacted labelled antibody;

(d) measuring either the amount of labelled antibody associated with the solid carrier or the amount of unreacted labelled antibody; and

(e) relating the amount of labelled antibody measured with the amount of labelled antibody measured for a control sample prepared in accordance with steps (a)-(d), said control sample being known to be free of said antigenic substance, to determine the presence of antigenic substance in said fluid sample, or relating the amount of labelled antibody measured with the amount of labelled antibody measured for samples containing known amounts of antigenic substance prepared in accordance with steps (a)-(d) to determine the concentration of antigenic substance in said fluid sample, the first and second monoclonal antibodies having an affinity for the antigenic substance of at least about 10^{<8>} liters/mole.

The District Court Decision

Hybritech sued Monoclonal March 2, 1984, for damages and an injunction alleging that the manufacture and sale of Monoclonal's diagnostic kits infringed the '110 patent. Trial without a jury began on August 5, 1985, and [**10] concluded August 23, 1985, thirty witnesses having been heard and over 2,000 pages of transcript generated. The district court produced the reported opinion, findings, and conclusions, which use nearly verbatim Monoclonal's *pre-trial* brief and *pre-trial proposed* findings of fact and conclusions of law, in three days, in support of the judgement now on appeal.

The district court held that the claimed subject matter of the '110 patent was neither conceived nor actually reduced to practice before May 1980, and was anticipated under § 102(g) by the actual reduction to

practice of the invention by Drs. Uotila and Ruoslahti at the La Jolla Cancer Research Foundation (LJCRF) as early as November of 1979 and by the actual reduction to practice of the invention by Drs. Oi and Herzenberg (Oi/Herzenberg work) at the Stanford University Laboratory as early as July 1978, later published in December of 1979.

The district court also held the claims of the '110 patent invalid for obviousness from the Oi/Herzenberg work in view of (1) a February 1979 article by M. E. Frankel and W. Gerhard (Frankel article) which discloses high-affinity monoclonal antibodies, and apparently in view of [**11] numerous other references including; (2) the work of Nobel Prize winners G. Kohler and C. Milstein disclosing a Nobel Prize-worthy method for producing monoclonal antibodies in vitro (outside the body) published in an August 7, 1975, article; (3) U.S. Patent No. 4,244,940 issued to Jeong et al. disclosing a simultaneous polyclonal assay (Jeong), U.S. Patent No. 4,098,876 to Piasio et al. disclosing a reverse polyclonal sandwich assay (Piasio), U.S. Patent No. 4,016,143 to Schurrs et al. disclosing a forward polyclonal sandwich assay (Schurrs); (4) a July 1979 publication by A. C. Cuello et al. disclosing the use of monoclonal antibodies in competitive assays; and (5) eight articles dated between January 1979 and March 6, 1980, "predicting" that monoclonal antibodies would be used in future immunoassays. n1

n1 With respect to obviousness, one portion of the district court's opinion apparently relies on all of the above listed references, (1) -- (5), for the obviousness holding while a later portion entitled "CONCLUSIONS OF LAW" relies on only the Oi/Herzenberg and Frankel articles. Furthermore, the district court did not state that the LJCRF work was considered for purposes of § 103, although we recognize that § 102(g) prior art can be used for § 103.

[**12]

The district court also invalidated the patent on various grounds based on 35 USC § 112, first and second paragraphs, as hereinafter discussed.

[*1372] A. *The References*

1. *Kohler and Milstein's Nobel Prize-Winning Work: Producing Monoclonal Antibodies In Vitro For the First Time*

In early immunoassay work, polyclonal antibodies produced in vivo (in the body) in mice were used to bind with the antigen to be detected in the body fluid sample. Mice were immunized by injection with antigen so that

the lymphocytes in their bodies produced antibodies that attacked the injected antigen. Those polyclonal antibodies were withdrawn from the animal's blood and used in immunoassays. The major problem was that when the mice's immune systems changed or the mice died, the antibodies changed or died too; supply was limited and uncertain.

As the examiner was aware, Kohler and Milstein developed a technique not only for producing antibodies in vitro, independent of a living body, thus eliminating dependence on a particular animal, but for in vitro production of monoclonal antibodies by hybridomas, discussed in the Background section, supra.

Given that [**13] sandwich assays require enormous amounts of antibodies, companies like appellant and appellee, which utilize monoclonal antibodies for sandwich assays, would not be in business were it not for the work of Kohler and Milstein.

2. *The Work of Drs. Ruoslahti, Uotila, and Engvall at the La Jolla Cancer Research Foundation (LJCRF) in 1979 and 1980*

Dr. Ruoslahti performed mostly competitive immunoassays using polyclonal antibodies to alphafetoprotein (AFP) antigens at the City of Hope since 1970. Dr. Uotila joined him in late 1978 to perform immunoassays using monoclonal antibodies to AFP. After producing monoclonal antibodies to AFP and performing competitive radio immunoassays (RIA -- a competitive assay that uses a radioactive label) with monoclonal antibodies at the City of Hope in mid-1979, Drs. Ruoslahti, Uotila and Engvall left LJCRF.

In the fall of 1979, September or October according to Dr. Uotila, discussion and work began on using monoclonal antibodies to AFP in a sandwich assay. Dr. Uotila, the principal researcher in this particular endeavor, generated six notebooks while at the City of Hope and LJCRF. The next-to-last page of notebook four contained a note to [**14] Dr. Uotila from Dr. Ruoslahti reading:

Sometime you should enzyme label a good monoclonal antibody so that you can set up a sandwich assay. If you use two monoclonal antibodies, you may be able to do the assay with a single incubation, since the monoclonal antibodies are likely to be directed against different determinants and not compete with one another.

Although Dr. Uotila's notebook pages were, for the most part, unsigned, undated, and uncorroborated, Dr.

Ruoslahti's testimony, placed the date of this note at about October 1979 by referring to the first pages of notebook five which were dated in early November 1979. Dr. Ruoslahti testified that one curve on one graph on page 43D of notebook five showed a successful simultaneous sandwich assay using monoclonal antibodies about November 5, 1979, although no data supporting that graph could be found elsewhere in the notebook. He further testified that the affinity of the monoclonal antibodies used for that test was not calculated until 1980 but that the raw data necessary for that calculation was generated in 1979.

Dr. Uotila stated in her deposition (she did not testify at trial) that she started work on a sandwich [**15] assay using monoclonal antibodies between October 4 and the end of that month, 1979, and that she could not remember the procedure used nor was there enough information in her notebook, including page 43D, to refresh her memory. She did remember, although she continued work on this assay because the tests did not yield repeatedly good curves without which she would not publish her work, that the assay on page 43D was successful. Dr. Engvall testified about a discussion of Dr. Uotila's monoclonal antibody work with [*1373] her while at the City of Hope and about first performing a sandwich assay after arriving at LJCRF in 1979.

3. *The Work of Drs. Oi and Herzenberg at the Stanford University Laboratory in 1978 Published in December 1979*

Drs. Oi and Herzenberg used monoclonal antibodies to "map" epitopes or determine the number and location of different antibody binding sites on a known quantity of IgE antigen by attaching to it an antibody bound to a carrier and exposing that antigen to other monoclonal antibodies. The antibodies either attached to epitopes on the antigen or were blocked from doing so by the other monoclonal antibodies, depending on the location and [**16] number of epitopes; if the epitopes on the antigen were too close together and the number of antibodies too great, few antibodies would bind to the antigen. Hybritech points out that both Dr. Herzenberg and Dr. Oi testified that *their work did not involve determining the presence or quantity of antigen*, that they had no idea what the affinities of the monoclonal antibodies used were, and that those values were never calculated.

One unsigned, unwitnessed page from three large laboratory notebooks, which Hybritech argues is insufficient because it does not identify the chemical reagents or protocol used, was relied on by Monoclonal to establish actual reduction to practice of the Oi/Herzenberg work in 1978 to establish a case of § 102(g) prior invention by another. The district court

agreed with Monoclonal that the Oi/Herzenberg work anticipated the claimed invention and, in addition, combined this work with the Frankel publication to hold that the claimed subject matter was obvious under § 103. 4. *The Frankel Article: Monoclonal Antibodies Having Affinities of 10 (9) liters/mole*

Frankel describes an RIA (radioimmunoassay) method for the rapid determination of affinity [**17] constants for monoclonal antibodies produced from hybridomas. The article states that the assay used is applicable only to antibodies with binding constants of about 10 <10> liters/mole and discloses the binding constants for antibodies to several closely related strains of influenza virus.

The district court found that Frankel disclosed monoclonal antibodies having the affinity constants claimed in the '110 patent, 10 <8> to over 10 <9> liters/mole.

5. *The Cuello Article and the Jeong, Piasio, and Schurr Patents Considered by the Examiner*

Cuello, dated July 1979, states that it describes the usefulness of monoclonal antibodies in the characterization and localization of neurotransmitters such as Substance P, a peptide clearly associated with the transmission of primary sensory information in the spinal cord. The article discloses producing monoclonal antibodies from hybrid myelomas (hybridomas), their use in conventional radioimmunoassay techniques, and the benefits from doing so which flow from the ability to derive permanent cell lines capable of continuous production of highly specific antibodies.

The district court found that the examiner twice rejected all of the [**18] claims of the '110 patent based on Cuello alone or in combination with the Jeong, Piasio, and Schurr references which disclose various sandwich assays using polyclonal antibodies. The court also found that the examiner allowed the claims after they were amended to include the 10 <8> affinity limitation and after Richard Bartholomew, a Hybritech employee, submitted an affidavit alleging the advantages of using monoclonal rather than polyclonal antibodies in sandwich assays.

Apparently based on the testimony of Monoclonal's expert witness Judith Blakemore, a named inventor of the Jeong patent, manager of antibody programs at Bio-Rad Laboratories from 1975 to 1982, and currently manager of monoclonal antibody therapeutics at Cetus Corporation, a Hybritech competitor in immunoassay diagnostics, the district court stated that the "reasons for allowance were not well-founded because (1) the alleged advantages were [*1374] expected as naturally flowing from the well-known natural characteristics of monoclonal antibodies . . . ; (2) . . . were not significant . .

; or (3) were at best minor," although they were "argued to the examiner as if they were" important. These were Monoclonal's [**19] words from its pretrial submission adopted by the court.

6. *The References That "Predicted" the Use of Monoclonal Antibodies in Immunoassays*

The district court stated, again in Monoclonal's words, that "it is of the utmost importance" that the advantages of monoclonal antibodies were "predicted by a number of authorities," eight to be exact, not important enough to list here, after the Kohler and Milstein discovery and after monoclonal antibodies became available.

B. *The Claimed Subject Matter of the '110 Patent*

Hybritech argues that the district court's determination that there is no credible evidence of conception or reduction to practice of the '110 invention before May 1980 is error because Dr. David's laboratory notebooks, Nos. 21 and 24, clearly show successful sandwich assays using monoclonal antibodies in August, September, and October of 1979. At the least, argues Hybritech, the invention was conceived in January of 1979, long before Drs. Ruoslahti, Engvall, and Uotila began work on a sandwich assay using monoclonal antibodies, and diligence was thereafter exercised until constructive reduction to practice occurred by the filing of the '110 patent application [**20] on August 4, 1980.

Dr. David and Greene testified that pages 2118 to 2122 of Dr. David's notebook, dated January 4, 1979, and witnessed January 30, 1979, disclose the generic conception of the invention in the context of the physical support structure used to carry out a sandwich assay, and Dr. David testified on redirect that (1) Page 1128 of notebook 21, dated May 27, 1979, recorded an early attempt at a sandwich assay that failed, (2) on August 3, 1979, as recorded at page 1166, a sandwich assay using monoclonal antibody 068 attached to a solid carrier, a radio-labelled 068 antibody, and a hepatitis antigen from an Abbott Labs polyclonal competitive assay kit was successfully performed, and (3) a sandwich assay using a bound 259 antibody, a radio-labelled 068 antibody, and a hepatitis antigen was successfully performed on September 21, 1979. Hybritech also urges that work in October 1979 directed to determining whether certain monoclonal antibodies were recognizing the same or different determinants, was a reduction to practice.

Monoclonal points out that these notebook pages do not expressly state that monoclonal antibodies of 10 <8> liters/mole affinity were used in a sandwich [**21] assay and that the May, August, and September notebook entries were not witnessed until about the time Dr. Adams, experienced in patent matters, joined Hybritech and advised its researchers on properly recording

laboratory work. They therefore claim that actual reduction to practice was not shown before May 1980.

OPINION

I. *Review Under Rule 52(a) Fed. R. Civ. P.*

Rule 52(a) "ensures care in the preparation of an opinion . . . and provides appellate courts with the benefit of the District Court's insights into a case," *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 318, 227 U.S.P.Q. (BNA) 766, 772 (Fed. Cir. 1985) (Harvey, Senior District Judge, concurring) by requiring a district court to "find the facts specially and state separately its conclusions of law thereon." With the exception of the first eight paragraphs, the first half of the district court's opinion here is Monoclonal's *pretrial* brief and the last three pages of the opinion are Monoclonal's *pretrial* findings of fact and conclusions of law. The district court adopted the above documents [**22] virtually verbatim, with the exception of portions of each concerning inequitable conduct and noninfringement, apparently without inviting a response from Hybritech, resulting in a repetitious (as the district court admitted in [1375] the opinion), sometimes internally inconsistent, and hard to follow opinion that presents us with a difficult task in gleaning the basis for many of the conclusions. For some of the findings, submitted before trial, no supporting evidence was introduced at trial.

The Supreme Court, in *Anderson v. City of Bessemer City, N.C.*, 470 U.S. 564, 105 S. Ct. 1504, 84 L. Ed. 2d 518 (1985), strongly criticized the practice of "verbatim adoption of findings of fact prepared by prevailing parties, particularly when those findings have taken the form of conclusory statements unsupported by citation to the record." *Anderson*, supra at 1511. This court also has cautioned against the adoption of findings, especially when proposed by a party before trial, as here, and stated that the likelihood of clear error in those findings increases in such a situation. *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 730 F.2d 1452, 221 U.S.P.Q. (BNA) 481, 485 (Fed. Cir. 1984). [**23] Notwithstanding our misgivings about whether the findings in this case, prepared before any evidence was introduced, satisfy the objectives of Rule 52(a) -- a carefully prepared opinion providing the reviewing court with the benefit of the district court's *reasoned insights* into the case -- those findings are the district court's and may be reversed only if clearly erroneous. See *Anderson*, supra, at 1511; *Lindemann*, 730 F.2d at 1457, 221 U.S.P.Q. at 485.

"A finding is clearly erroneous when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *United States v. United States Gypsum Co.*, 333 U.S. 364, 395,

92 L. Ed. 746, 68 S. Ct. 525 (1948). "This standard plainly does not entitle a reviewing court to reverse the finding of the trier of fact simply because it is convinced that it would have decided the case differently." *Anderson*, supra, at 1511. In other words, "if the district court's account of the evidence is plausible in light [**24] of the record viewed in its entirety" or "where there are two permissible views of the evidence," the factfinder cannot be clearly erroneous. *Anderson*, supra, at 1511 (quoting *United States v. Yellow Cab Co.*, 338 U.S. 338, 70 S. Ct. 177, 94 L. Ed. 150 (1949)). This is so, stated the Court in dictum, see *Anderson*, supra, at 1516 (Blackmun, J., concurring), even when the district court's findings rest on physical or documentary evidence or inferences from other facts and not on credibility determinations. See also Rule 52(a) Fed. R. Civ. P. (as amended Aug. 1, 1985). If the latter are involved, "Rule 52 demands even greater deference to the trial court's findings" but a trial judge may not "insulate his findings from review by denominating them credibility determinations"; if documents or objective evidence contradict the witness's story, clear error may be found even in a finding purportedly based on a credibility determination. *Anderson*, supra, at 1512-13. We proceed in light of all these principles.

II. Presumption of Validity

[**25] Under 35 USC § 282, a patent is presumed valid, and the one attacking validity has the burden of proving invalidity by clear and convincing evidence. See, e.g., *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1360, 220 U.S.P.Q. (BNA) 763, 770 (Fed. Cir. 1984). Notwithstanding that the introduction of prior art not before the examiner may facilitate the challenger's meeting the burden of proof on invalidity, the presumption remains intact and on the challenger throughout the litigation, and the clear and convincing standard does not change. See, e.g., *Jervis B. Webb Co. v. Southern Systems, Inc.*, 742 F.2d 1388, 1392 & n.4, 222 U.S.P.Q. (BNA) 943, 945 & n.4 (Fed. Cir. 1984). The only indication that the district court recognized the presumption of validity and its proper application was its statement that "the key issue in this case is whether the defendant has overcome the presumption of nonobviousness." That statement, however, speaks only part of the truth; the presumption of validity goes to validity of the patent in relation to the patent statute as a [**26] whole, not just to nonobviousness under section 103.

[*1376] III. Prior Invention of Another, 35 USC § 102(g)

Section 102(g) states that a person shall be entitled to a patent unless "before the applicant's invention thereof the invention was made in this country by

another who had not abandoned, suppressed, or concealed it." Section 102(g) "relates to prior inventorship by another in this country" and "retains the rules governing the determination of priority of invention. . . ." *Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1444, 223 U.S.P.Q. (BNA) 603, 606 (Fed. Cir. 1984) (quoting P.J. Federico, *Commentary on the New Patent Act*, 35 USCA page 1, at 19 (1954)). Section 102(g) says: "In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

[**27] Reduction to practice, and conception as well, is a legal determination subject to review free of the clearly erroneous standard. *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 837, 221 U.S.P.Q. (BNA) 561, 565-66 (Fed. Cir. 1984); *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1151, 219 U.S.P.Q. (BNA) 13, 18 (Fed. Cir. 1983). Findings of fact supporting that legal conclusion are, of course, reviewed under the clearly erroneous standard.

Conception is the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice." 1 *Robinson On Patents* 532 (1890); *Coleman v. Dines*, 754 F.2d 353, 359, 224 U.S.P.Q. (BNA) 857, 862 (Fed. Cir. 1985). Actual reduction to practice requires that the claimed invention work for its intended purpose, see, e.g., *Great Northern Corp. v. Davis Core & Pad Co.*, 782 F.2d 159, 165, 228 U.S.P.Q. (BNA) 356, 358, (Fed. [**28] Cir. 1986), and, as has long been the law, constructive reduction to practice occurs when a patent application on the claimed invention is filed. *Weil v. Fritz*, 572 F.2d 856, 865 n.16, 196 U.S.P.Q. (BNA) 600, 608 n.16 (CCPA 1978) (citing with approval *Automatic Weighing Machine Co. v. Pneumatic Scale Corp.*, 166 F. 288 (1st Cir. 1909)).

After a review of the record in its entirety, including the numerous corroborating Hybritech laboratory notebooks, internal documents, and pertinent testimony, we hold clearly erroneous the district court's finding that there is no clear or corroborated evidence "with regard to when before May 1980, the idea of actually using monoclonals in sandwich assays" was conceived or, more properly, or when the *claimed invention* was conceived, and therefore reverse the court's holding, as a matter of law, that Hybritech's inventors did not conceive the claimed invention before May 1980.

Hybritech's claim of conception, generally, is evidenced by the sometimes sparsely documented work

of a start-up company whose first small advances evolved into the myriad activities of a mature company with efforts directed toward developing [**29] the claimed invention by first employing the Kohler and Milstein technology to produce the necessary monoclonal antibodies and using those antibodies in diagnostic sandwich assay kits. There is no doubt that exploiting monoclonal antibodies for use in sandwich assays was one of the major objectives of Hybritech. In a letter to Pharmacia Fine Chemicals dated April 26, 1979, Greene, in responding to Pharmacia's interest in Hybritech's products, outlined the latter's "efforts to bring the exciting new hybridoma technology into routine medical use" and its exploration of "several intriguing concepts for which monoclonals may open up new immunodiagnostic techniques heretofore infeasible with animal serums." Although company minutes in early 1979 contain little about the claimed subject matter and some of the discussions thereon, such as Greene's and Dr. Adams' conversation about monoclonal sandwich assays when the former was trying to woo Dr. Adams to join Hybritech were unrecorded, the Hybritech laboratory notebooks and the [*1377] nature of Hybritech's research program fully corroborate the testimonial evidence of conception and thus clearly support our holding that Hybritech conceived [**30] the claimed invention before LJCRF.

Dr. David's January 1979 notebook describes, in detail, as explained by Greene and Dr. David at trial, a nylon apparatus that undoubtedly could be used for performing a sandwich assay using monoclonal antibodies, although Dr. David testified on cross-examination that at that time Hybritech had not yet developed any monoclonal antibodies, including attaching one of the reagents to a solid carrier ring, contacting that ring with a fluid sample in a microtiter plate well, adding a labelled reagent to the well after rinsing, and then "counting" or measuring the amount of either the labelled or unlabelled reagent after a prescribed time and second rinsing. The notebook then describes the procedure for detecting an antibody "(a-x)" to an antigen "(x)" complete with diagrams and text, both illuminated by Dr. David at trial. The notebook further states, "Alternatively, if one wished to quantitate an antigen, y, the identical procedure would be followed, except that reagents would be reversed, i.e. the reaction would be:" and there follows a clear illustration of an antibody attached to a solid carrier reacting with an antigen to form a complex, and that [**31] complex reacting with a second labelled antibody. The notebook was signed by Dr. David on January 4, 1979, and witnessed and signed on January 30 of the same year by Dr. Curry, the first cell biologist hired at Hybritech to set up the hybridoma production program.

Dr. David testified on direct that monoclonal antibodies were developed in the following months: antigens were purchased from outside sources and purified before being injected into mice; the spleen cells from those mice were fused with myelomas; and the resultant hybridomas were separated into well plates for development, and a radioimmunoassay procedure was carried out to determine the affinity of the antibodies.

The May 1979 failed sandwich assay, witnessed in May 1980, corroborates Dr. David's testimony that a polyclonal antibody bound to be a solid carrier and a labelled monoclonal antibody were used in a sandwich assay with an antigen from Abbott Labs' Ausria polyclonal diagnostic kit for hepatitis. No binding was detected.

Dr. David testified about the experiment documented in the August 1979 notebook, a sandwich assay with a hepatitis antigen from an Abbott Labs Ausria kit with two Hybritech 068 monoclonal [**32] antibodies, one attached to a solid carrier bead and the other labelled; the purpose of the experiment was to quantitate the antigen. The notebook corroborates Dr. David's testimony that the test was positive and lists the counts per minute of the labelled antibody. Defendant Monoclonal's expert Ciotti testified about this experiment:

Also, of course, it is limited to -- it is limited to hepatitis antigen. And without a generic conception, it would just be merely a -- if it did work for its intended purpose -- which I would assume for purposes of discussion -- *it would be a reduction to practice of one embodiment.* And without a corresponding generic conception, I don't think it would be held to be the making of the invention in terms of, for instance, in claim 19. [Emphasis ours.]

Dr. David further testified that the September 21, 1979, record in David's notebook, witnessed months later, shows a reverse sandwich assay using a bound 259 monoclonal antibody and a labelled 068 monoclonal antibody with a hepatitis antigen with results confirmed by a dose response curve. n2 Hybritech further alleges that a laboratory notebook page dated October 1979 is a reduction [**33] to practice of the [*1378] claimed invention but fails to cite any related testimony or other evidence in support thereof.

n2 A dose response curve is antigen concentration plotted against the signal produced

by labelled antibody in an immunoassay. The signal increases with increasing antigen concentration in a successful assay but at some point decreases when the antigen concentration becomes too high.

Finally, the record shows that the claimed affinity limitation "of at least about 10 ^{<8>} liters/mole" was determined and appreciated during the course of the development of the claimed subject matter. Dr. David and Dr. Adams separately testified that the screening procedures used by Hybritech ensured that only monoclonal antibodies having at least 10 ^{<8>} liters/mole affinity would be used in assays. An October 1979 internal memorandum from Greene to the staff states, "To improve comparisons we will express all affinities to the base ten to the eighth which represents the lower end of the usable range." [**34]

We are left with the definite and firm conviction that a mistake has been committed because the district court's account of the evidence that "there was no credible evidence of conception before May 1980" is insupportable. There is such evidence. The laboratory notebooks, alone, are enough to show clear error in the findings that underlie the holding that the invention was not conceived before May 1980. That some of the notebooks were not witnessed until a few months to one year after their writing does not make them incredible or necessarily of little corroborative value. Admittedly, Hybritech was a young, growing company in 1979 that failed to have witnesses sign the inventors' notebooks contemporaneously with their writing. Under a reasoned analysis and evaluation of all pertinent evidence, however, we cannot ignore that Hybritech, within a reasonable time thereafter, prudently had researchers other than those who performed the particular experiments witness the notebooks in response to Tom Adams' advice. The notebooks clearly show facts underlying and contemporaneous with conception of the claimed invention and in conjunction with the testimony of Dr. David and Greene, [**35] and others, are altogether legally adequate documentary evidence, under the law pertaining to conception, of the formation in the minds of the inventors of a definite and permanent idea of the complete and operative invention as it was thereafter applied in practice. We thus are not moved by Monoclonal's argument that the findings of fact underlying conception are based on credibility determinations and are more sacrosanct than usual. See *Anderson*, supra, at 1512-13.

1. *LJCRF Is Not Prior Art*

Hybritech laboratory notebooks and the uncontradicted testimony of Dr. David and Mr. Greene

show that development of the claimed invention proceeded diligently through the rest of 1979 and 1980, there being absolutely no evidence of record nor even argument by Monoclonal that Hybritech was not diligent in its efforts to reduce to practice the claimed invention during the period January 1979 to the '110 application filing date of August 4, 1980. We therefore hold as a matter of law that Hybritech's conception, which was before LJCRF conceived the claimed invention, coupled by diligence to its constructive reduction to practice by the filing of the '110 application, entitle Hybritech [**36] to priority over LJCRF. See 35 USC § 102(g). The work of LJCRF is therefore not prior art.

We also note that there is inadequate factual basis for the district court's holding that LJCRF reduced the claimed invention to practice as early as November 1979 because the only evidence that corroborates the testimony of Ruoslahti, Uotila, and Engvall is the note from Ruoslahti to Uotila, see section A, 2, supra, which indisputably is not the claimed invention, and the *one* curve from *one* graph from only one page, 43D, of the six Uotila notebooks. After a reasoned examination, analysis, and evaluation of this pertinent evidence we conclude that it falls far short of showing the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice," see *Coleman*, 754 F.2d at 359, 224 U.S.P.Q. at 862, and therefore is legally inadequate to support even a holding of *conception* of [**1379] the claimed invention by LJCRF personnel in 1979.

(1) It is undisputed that page 43D was not signed, witnessed, or dated; (2) the deposition testimony of [**37] Uotila was that she could not remember the procedure used to arrive at the dose-response curve on page 43D and there was not enough information in her notebook to refresh her memory; (3) the testimony of Ruoslahti was that he could find *no* data in the notebook supporting that graph, none of the *later* graphs shown there represented successful assays and that "especially after this was done, we ran into more severe problems. And it took us a while to do away with the problems;" (4) Ruoslahti also testified that they never determined, in 1979, the affinities of the monoclonal antibodies they used, and that the title of page 43D had been altered at some point -- the word "inhibition" had been crossed out and "sandwich" written in; and (5) the testimony of Engvall was that there was nothing about the shape of those curves which indicates that they were sandwich assays. We also note, as evidence bearing upon the credibility of Ruoslahti's testimony (that LJCRF actually reduced the claimed invention to practice in 1979), that when LJCRF attempted to provoke an interference in the PTO with Hybritech based on the U.S. filing of an

application that was the counterpart to a Swedish application [**38] disclosing similar subject matter, LJCRF could not demonstrate even a *prima facie* reduction to practice prior to Hybritech's August 4, 1980, filing date. During that proceeding, the earliest dates Ruoslahti set down on paper to support conception and reduction to practice were in 1980.

2. The Work of Oi/Herzenberg Is Not the Claimed Invention

It is axiomatic that for prior art to anticipate under § 102 it has to meet every element of the claimed invention, and that such a determination is one of fact. See, e.g., *Lindemann*, supra, 730 F.2d at 1458, 221 U.S.P.Q. at 485; *Great Northern Corp. v. Davis Core & Pad Co.*, 782 F.2d 159, 165, 228 U.S.P.Q. (BNA) 356, 358 (Fed. Cir. 1986). Section 102(g) upon which the district court relied is one type of "anticipation," i.e., prior invention by another of the same invention. Drs. Oi and Herzenberg testified that their work did not involve detecting the presence of or quantitating antigen but a determination of the number and location of epitopes on a *known* quantity of antigen. Although this work did [**39] involve a sandwich assay to the extent that an antigen was sandwiched between two monoclonal antibodies, it is clear that the similarity between that work and the claimed invention goes no further. Furthermore, both doctors testified that they did not know the affinities of the antibodies that were used in their mapping work and in fact never calculated them. Ciotti, Monoclonal's expert, testified that the 10<8> affinity limitation cannot be found anywhere in the Oi/Herzenberg work. Again we are left with a definite and firm conviction that a mistake was made because that work does not meet every element of the claimed invention. The district court's finding to the contrary is clearly erroneous.

We note that the district court, in also holding the patent invalid under § 103, next considered, combined the Oi/Herzenberg work with the Frankel reference, one justifiable inference therefrom being that the court recognized that Frankel discloses a claim *element* that Oi/Herzenberg does not, namely, at least about 10<8> liters/mole affinity.

IV. Obviousness, 35 USC § 103

[**40] A section 103 obviousness determination -- whether the claimed invention *would have been* (not "would be" as the court repeatedly stated because Monoclonal's pretrial papers used that improper language) obvious at the time the invention was made is reviewed free of the clearly erroneous standard although the underlying factual inquiries -- scope and content of the prior art, level of ordinary skill in the art, n3 and differences between the prior art [1380] and the

claimed invention -- integral parts of the subjective determination involved in § 103, are reviewed under that standard. Objective evidence such as commercial success, failure of others, long-felt need, and unexpected results must be considered *before* a conclusion on obviousness is reached and is not merely "icing on the cake," as the district court stated at trial. See *Lindemann*, supra, 730 F.2d at 1461, 221 U.S.P.Q. at 488; *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 U.S.P.Q. (BNA) 871 (Fed. Cir. 1983); *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 219 U.S.P.Q. (BNA) 857 (Fed. Cir. 1983); *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. (BNA) 303, 314 (Fed. Cir. 1983). [**41]

n3 Although the district court failed expressly to find the level of ordinary skill in the art at the time the invention was made, it did make reference to "people working in immunology aware of the Kohler and Milstein discovery" which we deem an accurate finding for the purposes of that portion of the *Graham* factual inquiries.

1. The Eight Articles "Predicting" Widespread Use of Monoclonal Antibodies

Before discussing the more pertinent references in this case -- the Oi/Herzenberg and Frankel works -- we cull the other prior art references relied on by the trial court.

First, the latest four of the eight articles that the court stated were of the "utmost importance" because they "predicted" that the breakthrough in production of monoclonal antibodies by Kohler and Milstein would lead to widespread use of monoclonal antibodies in immunoassays are neither 102(a)/103 nor 102(b)/103 prior art because they are dated between late 1979 and March 6, 1980, well after the date of conception and within one [**42] year of the filing date of the '110 patent.

The earliest four of the eight articles, on the other hand, although clearly prior art, discuss *production* of monoclonal antibodies -- admittedly old after Kohler and Milstein showed how to produce them -- but none discloses sandwich assays. At *most*, these articles are invitations to try monoclonal antibodies in immunoassays but do not suggest how that end might be accomplished. To the extent the district court relied upon these references to establish that it would have been *obvious to try* monoclonal antibodies of 10<8> liters/mole affinity in a sandwich immunoassay that detects the presence of or quantitates antigen, the court

was in error. See *Jones v. Hardy*, 727 F.2d 1524, 1530, 220 U.S.P.Q. (BNA) 1021, 1026 (Fed.Cir. 1984) ("Obvious to try" is improper consideration in adjudicating obviousness issue). n4

n4 Finding 10, which states that the invention was contemporaneously developed and disclosed in at least five publications and patent applications not listed above *and dated well after the filing date of the '110 patent but before its issuance* is irrelevant for purposes of the hypothesis based on the three factual inquiries required by § 103 as interpreted by *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. (BNA) 459, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966) because obviousness must be determined as of the time the invention was made. Additionally, they are of little probative value in this case because they are dated December 1981 at the earliest, more than a year after the August 4, 1980, filing date here and roughly two years after conception occurred. Furthermore, simultaneous development may or may not be indicative of obviousness, the latter being the case here for the above reasons and because the other evidence of nonobviousness is adequate, such occurrences having been provided for in 35 USC § 135. *Lindemann*, supra, 730 F.2d at 1460-61, 221 U.S.P.Q. at 487; *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 698 n.7, 218 U.S.P.Q. (BNA) 865, 869 n.7 (Fed. Cir. 1983).

[**43]

2. *The Kohler and Milstein Work, the Cuello Article and the Jeong, Piasio, and Schurr Patents Considered by the Examiner*

The district court's finding that Kohler and Milstein developed a method for producing monoclonal antibodies in vitro is correct, but that finding proves no more; although it made possible all later work in that it paved the way for a supply of monoclonal antibodies, it indisputably does not suggest using monoclonal antibodies in a sandwich assay in accordance with the invention claimed in the '110 patent.

The Cuello reference discloses monoclonal antibodies but not in a sandwich assay. The competitive assay in Cuello, moreover, [*1381] uses only one monoclonal antibody and thus in no way suggests the claimed invention wherein a ternary complex of two monoclonal antibodies and an antigen form a sandwich. Furthermore, the court did not explain how this art, by itself or in combination with any of the other art,

suggests the claimed subject matter and thus why that combination would have been obvious. We are of the opinion that it does not.

The district court correctly found that the use of polyclonal antibodies in sandwich assays was well known. [**44] The Jeong patent discloses the use of polyclonal antibodies in a simultaneous sandwich assay, with no suggestion that monoclonal antibodies be so used. It is prior art by virtue of § 102(e), application for the patent having been filed September 5, 1978, its effective date as a reference. The Piasio patent, disclosing a reverse sandwich assay using polyclonal antibodies, and Schurrs, disclosing a forward sandwich assay using the same, both § 102(a) prior art, are likewise devoid of any suggestion that monoclonal antibodies can be used in a similar fashion.

3. *The Oi/Herzenberg Work and the Frankel Article*

Clearly, the most pertinent items of prior art not cited by the examiner are the Oi/Herzenberg work, as described in section A, 3, supra, and the Frankel article. As stated in the discussion of Prior Invention of Another (section III, 2, supra), the Oi/Herzenberg work involved mapping epitopes on a known quantity of antigen. It was not concerned with and does not disclose using monoclonal antibodies of at least 10⁸ liters/mole affinity. Oi and Herzenberg testified that they did not know the affinity of the antibodies used, and Ciotti testified that nowhere in that [**45] work is there mention of monoclonal antibody affinity of at least 10⁸ liters/mole. On this basis, we conclude that the Oi/Herzenberg work is qualitatively different than the claimed invention; the former is directed to mapping epitopes on a known quantity of antigen and the latter to determine the "presence or concentration of an antigenic substance in a sample of fluid . . ." We disagree with Monoclonal that these are "essentially the same thing." Furthermore, it is perfectly clear that this work in no way suggests using monoclonal antibodies of the affinity claimed in the '110 patent. It is because of these differences between the Oi/Herzenberg work and the claimed invention that the fact that an antigen was sandwiched between two monoclonal antibodies in the course of Oi's and Herzenberg's work is not sufficient basis to conclude that the claimed invention would have been obvious at the time it was made to a person of ordinary skill in the art.

Likewise, a conclusion that the invention would have been obvious cannot properly be reached when the Oi/Herzenberg work is considered in view of the Frankel article. Frankel teaches a method for rapid determination of affinity constants [**46] for monoclonal antibodies, some of which clearly have affinities of the order defined by the claims, but does not in any way suggest using two

of those antibodies in a sandwich to assay an antigen by forming a ternary complex of labelled antibody, the antigenic substance, and a bound antibody wherein the presence of the antigenic substance is determined by measuring either the amount of labelled antibody bound to a solid carrier or the amount of unreacted labelled antibody. The mere existence of prior art disclosing how to measure the affinity of high affinity monoclonal antibodies is insufficient to support a holding of obviousness. Hybritech's claims define a *process* that *employs* monoclonal antibodies, and does not merely claim antibodies of high affinity. In view of the fact that the Oi/Herzenberg work is not directed to an assay as claimed and does not disclose antibodies of at least 10⁸ liters/mole affinity, and further that Frankel fails to suggest using such antibodies in a sandwich assay, the Frankel article does not compensate for the substantial difference between the Oi/Herzenberg work and the claimed subject matter, and therefore those references in combination [**47] cannot support a holding of obviousness.

[*1382] 4. *Objective Evidence of Nonobviousness*

In one part of its opinion the court found that "the commercial success of the kits *may* well be attributed to the business expertise and acumen of the plaintiff's personnel, together with its capital base and marketing abilities" (emphasis ours) and later that "where commercial success is based on the sudden availability of starting materials, in this instance the availability of monoclonal antibodies as a result of the Kohler and Milstein discovery, business acumen, marketing ability, and capital sources, no causal relationship is proven." (Citation omitted.)

i. *Commercial Success: Hybritech's Diagnostic Kits Grabbed a Substantial Market Share*

The undisputed evidence is that Hybritech's diagnostic kits had a substantial market impact. The first diagnostic kit sales occurring in mid-1981, sales increased seven million dollars in just over one year, from \$6.9 million in 1983 to an estimated \$14.5 million in 1984; sales in 1980 were nonexistent. Competing with products from industry giants such as Abbott Labs, Hoffman LaRoche, Becton-Dickinson, and Baxter-Travenol, Hybritech's [**48] HCG kit became the market leader with roughly twenty-five percent of the market at the expense of market shares of the other companies. Its PAP kit ranks second only to a product sold by Dupont's New England Nuclear, surpassing products from Baxter-Travenol, Abbott, and others. Hybritech's other kits, indisputably embodying the invention claimed in the '110 patent, obtained similar substantial market positions.

Although the district court did not provide its insights into why commercial success was due to business acumen and not to the merits of the claimed invention, Monoclonal urges in support that it was due to Hybritech's spending disproportionate sums on marketing, 25-30% of income. The undisputed evidence was that expenditures of *mature* companies in this field are between 17 and 32%. Furthermore, the record shows that advertising makes those in the industry -- hospitals, doctors, and clinical laboratories -- aware of the diagnostic kits but does not make these potential users buy them; the products have to work, and there is no evidence that that is not the case here or that the success was not due to the merits of the claimed sandwich assays -- clearly contrary to [**49] the district court's finding.

The trial court's finding that the "sudden availability of monoclonals" was the reason for the commercial success of Hybritech's diagnostic kits (Finding 11) is unsupported by the record and clearly erroneous. Monoclonal admits that monoclonal antibodies were available in the United States in 1978, and the evidence clearly reflects that. Thus, at least *three years* passed between the time monoclonal antibodies were available in adequate supply and the time Hybritech began selling its kits. Especially in the fast-moving biotechnology field, as the evidence shows, that is anything but sudden availability.

ii. *Unexpected Advantages*

Hybritech points to the testimony of three witnesses skilled in the diagnostic field who state that, based on tests done in their laboratories as a result of real-world comparisons in the normal course of research, the diagnostic kits that embody the '110 invention unexpectedly solved long-standing problems. Dr. Hussa, the head of a large referral laboratory and a world-wide consultant, testified that until Hybritech introduced its kits, he and others were very skeptical and had almost exclusively used competitive [**50] assays with a radioactive tracer (RIAs). In relation to an [*1383] HCG Hybritech kit, he testified that he had first thought that the Hybritech HCG kit would not give accurate results for low antigen concentrations because that condition is indicated in the Hybritech kit by a low radioactivity reading, a reading difficult to differentiate from control samples containing no antigen. He also stated that in the past, RIA kits falsely detected HCG in nonpregnant women, a condition which would indicate cancer and surgery. He stated that when he employed the Hybritech HCG kit in such instances it demonstrated, correctly and absent any difficulty interpreting the data, that no HCG was present.

n5 Monoclonal's expert Blakemore testified that of 425 assays on the market in 1979 less than 1% were sandwich assays. Today, sandwich assays constitute the majority of all assays sold.

The record also shows that Blakemore, who testified extensively for Monoclonal that the claimed invention would have been obvious, never used monoclonal antibodies in sandwich assays at Cetus before 1980. Additionally, she did not even mention them in the Jeong patent, of which she was a coinventor, which issued January 13, 1981, long after the beginning of Hybritech's work in this area in 1979.

[**51]

Dr. Blethen, an M.D. holding a Ph.D. in biochemistry, testified that she did not think that the Hybritech HGH kit, for detecting growth hormone in children, would offer any advantage, but she determined that it detected HGH deficiencies in children where conventional RIAs failed to do so. She also stated that the kit does not give false positive readings as do conventional RIA kits, an opinion shared by Dr. Hussa. A third witness, Dr. Herschman, who holds a master's degree in chemistry, testified that he spent years working on the development of an assay that would determine the presence of TSH (thyroid stimulating hormone) with greater sensitivity. He succeeded but discovered that the Hybritech TSH kit had the same sensitivity, the test being performed in four hours rather than the three days his kit required.

Having considered the evidence of nonobviousness required by § 103 and *Graham*, supra, we hold, as a matter of law, that the claimed subject matter of the '110 patent would not have been obvious to one of ordinary skill in the art at the time the invention was made and therefore reverse the court's judgment to the contrary. The large number of references, [**52] as a whole, relied upon by the district court to show obviousness, about twenty in number, skirt all around but do not as a whole suggest the claimed invention, which they must, to overcome the presumed validity, *Lindemann*, 730 F.2d at 1462, 221 U.S.P.Q. at 488, as a whole. See 35 USC § 103; *Jones v. Hardy*, 727 F.2d 1524, 1529, 220 U.S.P.Q. (BNA) 1021, 1024 (Fed. Cir. 1984). Focusing on the obviousness of substitutions and differences instead of on the invention as a whole, as the district court did in frequently describing the claimed invention as the mere substitution of monoclonal for polyclonal antibodies in a sandwich assay, was a legally improper way to simplify the difficult determination of obviousness. See generally *Hodosh v. Block Drug Co.*, 786 F.2d 1136, 229 U.S.P.Q. (BNA) 182 (Fed. Cir. 1986). n6

n6 It bears repeating that it is crucial that counsel set forth the law accurately. More particularly, it is the duty of counsel to impart to the judge that the obviousness question properly is whether the *claimed invention as a whole would have been* obvious to one of *ordinary skill in the art at the time the invention was made*, and that the district court must *expressly* make the three factual determinations required by *Graham* and consider objective evidence of obviousness *before* the legal conclusion of obviousness *vel non* is made. Submitting to the court language like "any differences . . . would have been obvious," as was done here, violates the axiom that the question is not whether the differences would have been obvious but the claimed invention *as a whole*. Furthermore, arguing that "it would be obvious" rather than that it would *have been* obvious shifts the court's focus to the wrong period of time, namely to a time long after the wrong period of time, namely to a time long after the invention was made, in which, more likely than not, the prior art and the level of ordinary skill in the art are more advanced. See 35 USC § 103.

[**53]

With respect to the objective indicia of nonobviousness, while there is evidence that marketing and financing played a role in the success of Hybritech's kits, as they do with any product, it is clear to us on the entire record that the commercial success here was due to the merits of the claimed invention. It cannot be argued on this record that Hybritech's success would have been as great and as prolonged as admittedly it has been if that success were not due to the merits of the invention. The evidence is that these kits compete successfully with numerous others for the trust of persons who have to make fast, accurate, and safe diagnoses. This is not the kind of [*1384] merchandise that can be sold by advertising hyperbole.

V. Enablement, Best Mode, and Definiteness Under § 112

The section 112 defense appears to have been an afterthought of both Monoclonal, who briefly but unsuccessfully attempts to defend this utterly baseless determination, and of the district court which adopted the defense from Monoclonal's pretrial papers apparently without knowledge of the applicable law, to highlight, as it stated at trial, that it was part of its job to see that "whoever [**54] wins wins all the way or whoever loses loses all the way." Taken as a whole, the court's

comments on § 112 -- split into two parts, one from Monoclonal's pretrial brief and the other from the adopted pretrial findings and conclusions -- are internally inconsistent. The opinion states that the patent fails to disclose how (1) to make monoclonal antibodies; (2) to screen for proper monoclonal antibodies; and (3) to measure monoclonal antibody affinity and therefore the specification is nonenabling and does not satisfy the best mode requirement, and the claims are indefinite. We discuss each of these in turn.

1. Enablement

Enablement is a legal determination of whether a patent enables one skilled in the art to make and use the claimed invention, *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 960, 220 U.S.P.Q. (BNA) 592, 599 (Fed. Cir. 1983), is not precluded even if some experimentation is necessary, although the amount of experimentation needed must not be unduly extensive, *Atlas Powder Co. v. E.I. Du Pont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 U.S.P.Q. (BNA) 409, 413 (Fed. Cir. 1984), [**55] and is determined as of the filing date of the patent application, which was August 4, 1980. See *W. L. Gore and Associates v. Garlock, Inc.*, 721 F.2d 1540, 1556, 220 U.S.P.Q. (BNA) 303, 315 (Fed. Cir. 1983). Furthermore, a patent need not teach, and preferably omits, what is well known in the art. *Lindemann*, 730 F.2d at 1463, 221 U.S.P.Q. at 489.

The record fully supports the '110 patent's statement that

The monoclonal antibodies used for the present invention are obtained by the [hybridoma] process discussed by Milstein and Kohler. . . . The details of this process are well known and not repeated here.

The district court itself stated that the "method for producing monoclonal antibodies in vitro was well known prior to the alleged invention of the '110 patent," and used the "sudden availability of monoclonal antibodies" produced by the Kohler and Milstein discovery to support, albeit erroneously, its finding of a lack of nexus between the merits of the claimed invention and its commercial success. The court then about-faced and held the '110 patent deficient because it fails to teach how to make monoclonal antibodies. [**56]

With respect to screening, the only permissible view of the evidence is that screening methods used to identify the necessary characteristics, including affinity, of the monoclonal antibodies used in the invention were known in the art and that the '110 patent contemplated one of

those. At trial, Monoclonal's counsel stated "it is a procedure that was known in '78." In similar fashion, the district court held that the claimed subject matter would have been obvious in part because the "existence of monoclonal antibodies *having the affinity constants claimed in the patent was well known* prior to the alleged invention. . . ." [Emphasis ours.] Furthermore, there was not a shred of evidence that undue experimentation was required by those skilled in the art to practice the invention. We hold as a matter of law that the '110 patent disclosure is enabling.

2. Best Mode

"The specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention." 35 USC § 112. Because not complying with the best mode requirement amounts [**57] to concealing the preferred mode contemplated by the applicant at the time of filing, in order to find that the best mode requirement is not satisfied, it must be shown that [*1385] the applicant knew of and concealed a better mode than he disclosed. *DeGeorge v. Bernier*, 768 F.2d 1318, 1324, 226 U.S.P.Q. (BNA) 758, 763 (Fed. Cir. 1985) (quoting with approval *In re Sherwood*, 613 F.2d 809, 204 U.S.P.Q. (BNA) 537 (CCPA 1980)). The only evidence even colorably relating to concealment is testimony by various Hybritech employees that sophisticated, competent people perform the screening and that the screening process is labor-intensive and time-consuming. It is not plausible that this evidence amounts to proof of concealment of a best mode for screening or producing monoclonal antibodies for use in the claimed '110 process, and therefore we are of the firm conviction that the district court's finding that the best mode requirement was not satisfied is clearly erroneous.

3. Indefiniteness

The basis of the district court's holding that the claims are indefinite is that "they do not disclose how infringement may be avoided because antibody [**58] affinity cannot be estimated with any consistency." (Conclusion 6.) Even if the district court's finding in support of this holding -- that "there is no standard set of experimental conditions which are used to estimate affinities" -- is accurate, under the law pertaining to indefiniteness -- "if the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more," *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624, 225 U.S.P.Q. (BNA) 634, 641 (Fed. Cir. 1985) -- the claims clearly are definite. The evidence of record indisputably shows that calculating affinity was known in the art at

the time of filing, and notwithstanding the fact that those calculations are not precise, or "standard," the claims, read in light of the specification, reasonably apprise those skilled in the art and are as precise as the subject matter permits. As a matter of law, no court can demand more.

VI. [**59] *Motions*

Monoclonal's motion to strike Appendices A and B of Hybritech's reply brief as being beyond the page limit applicable to reply briefs is granted as to Appendix A but denied as to Appendix B, the latter having been helpful in culling the often non-supportive citations to the record by Monoclonal.

Hybritech's motion to supplement the record with a Monoclonal advertisement not considered at trial is denied. Any adverse impact that the disposition of these two motions has upon either party is more than outweighed by this court's patience with the seemingly endless flow of post-argument argumentative papers.

VII. *Conclusion*

The judgment of the district court holding the patent in suit invalid is *reversed* in all respects, and the case is *remanded* for a determination of the issue of infringement which the court held was moot.

REVERSED AND REMANDED.

LEXSEE 38 USPQ2D 1551

SENSONICS, INC., Plaintiff/Cross-Appellant, v. AEROSONIC CORP., Defendant-Appellant, and HERBERT J. FRANK, Defendant-Appellant.

95-1058, 95-1062, 95-1098

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

81 F.3d 1566; 1996 U.S. App. LEXIS 9471; 38 U.S.P.Q.2D (BNA) 1551

April 24, 1996, DECIDED

PRIOR HISTORY: [****1**] Appealed from: U.S. District Court for the Middle District of Florida. Judge Merhige, Jr.

DISPOSITION: AFFIRMED IN PART, MODIFIED AND REVERSED IN PART, AND REMANDED

LexisNexis(R) Headnotes

COUNSEL: Daniel P. Burke, Galgano & Burke, of Hauppauge, New York, argued for plaintiff/cross-appellant.

Robert E. Greenstien, Honigman, Miller, Schwartz & Cohn, of West Palm Beach, Florida, argued for defendant-appellant, Aerosonic Corp. Anne E. Brookes, John T. Klug, Louis K. Bonham and John G. Flaim, Honigman, Miller, Schwartz & Cohn, of Houston, Texas, were on the brief for defendant-appellant. Also on the brief were Robert W. Boos and Kevin M. Gilhool, Honigman, Miller, Schwartz & Cohn, of Tampa, Florida.

Sybil Meloy, Lisa S. Mankofsky and Patricia D. Granados, Foley & Lardner, of Washington, D.C., were on the brief for defendant-appellant, Herbert J. Frank.

JUDGES: Before NEWMAN, Circuit Judge, BENNETT, Senior Circuit Judge, and BRYSON, Circuit Judge.

OPINIONBY: NEWMAN

OPINION: [***1568**] NEWMAN, Circuit Judge.

This consolidated appeal and cross-appeal concern United States Patent No. 3,863,114 (the '114 patent)

owned by Sensonics, Inc. The defendants, Aerosonic Corp. and Herbert J. Frank, each appeals certain aspects of the judgment of [****2**] the United States District Court for the Middle District of Florida. n1 Aerosonic appeals the district court's ruling that the '114 patent is valid and enforceable, and also appeals the ruling of infringement [***1569**] as to some of the patent claims but not as to others. Mr. Frank appeals the ruling that he is personally liable for inducement to infringe the Sensonics patent. Sensonics cross-appeals the measure of damages, and the court's denial of enhanced damages and attorney fees.

n1 Sensonics, Inc. v. Aerosonic Corp., Nos. 90-84-T-23A and 93-724-T-23A (M.D. Fla. Oct. 11 and Nov. 4, 1994).

THE PATENTED INVENTION

The '114 patent is for a "Tapping Device for Generating Periodic Mechanical Pulses," inventor John F. DeMayo. Mr. DeMayo is a founder and officer of Sensonics. The tapping device, also called a "vibrator," is used primarily with aircraft instruments having moving indicators. Mechanical pulses, that is, taps, gently vibrate the moving parts in order to free them of the effects of static friction, permitting [****3**] the indicator to move freely and thus with greater accuracy and reliability. Such devices require accurate and reliable operation for extended periods of time and over wide temperature and voltage ranges. They require careful control of the strength of the vibration pulses in order to avoid causing errors in or requiring recalibration of the aircraft instrument.

The invention claimed in the '114 patent is an electromagnetic vibrator that is easier to manufacture,

more accurate, easier to adjust, and less expensive than prior devices. Its structure of a unitary base with integrally formed anvil and armature support eliminated the welding and soldering steps of earlier devices, and also assured a true and consistent path for the magnetic flux. Another advantageous structural component is the adjustment element for the strength of the vibration pulses, in the form of a screw which extends through the armature to the magnetic core. The head of the screw provides the stop for the moving armature, and thus adjustment of the screw enables ready adjustment of the mechanical pulses without removing the device from its casing, a disadvantage of prior vibrators.

It was not disputed that Aerosonic [**4] copied the Sensonics device in complete detail, and replaced the vibrating-reed design of the vibrator that Aerosonic was then making commercially. Mr. Frank and other witnesses testified that the vibrating-reed design was hard to manufacture, had an unacceptably high failure rate after installation, and was deficient in that it did not allow adjustment of the strength of the mechanical pulses. The superiority of the Sensonics device in accuracy, reliability, and cost, was undisputed.

PATENT VALIDITY

Aerosonic raised the defense of patent invalidity based on obviousness in terms of 35 U.S.C. § 103. The principal prior art at trial was an earlier invention of Mr. DeMayo, described in United States Patent No. 3,507,339 (the '339 patent). This patent was not cited as a reference during prosecution of the application that led to the '114 patent.

Mr. DeMayo testified that the '339 patent represented an earlier effort to make an improved mechanical vibrator. There was evidence that the '339 design had some advantages over prior devices, but that its shortcomings included manufacturing complexity, increased size, multiple components, difficulty of assembly, difficulty of adjustment, and [**5] too high a failure rate. Mr. DeMayo testified that he continued to work to solve these problems, and that after several additional years of effort he succeeded in doing so, with the vibrator that became the subject of the '114 patent. Although the '114 design and the '339 design have several similarities, there was evidence that the changes embodied in the '114 device achieved the simplicity and efficiency of manufacture, easy and accurate adjustment, compactness, quietness in operation, and reliability, that were inadequate in the '339 device.

The '339 device has a screw extending through the armature to the magnetic core. This screw is soldered into place in order to provide sufficient contact within the device to ensure magnetic flux, and is not usable to adjust the strength of the pulses. Although at trial

Aerosonic argued that it was obvious to make the design change of an adjustable screw, the district court observed that this element of the '114 invention provided significant advantages and remedied deficiencies of prior devices. The pulse strength for the '339 device was only adjustable from [*1570] below, and thus was not readily adjusted after installation. In contrast, the '114 [**6] device could be readily adjusted not only during manufacture but also after assembly and after installation in the aircraft instrument. Although Aerosonic points to the simplicity of this adjustment mechanism, simplicity does not establish obviousness; indeed, simplicity may represent a significant and unobvious advance over the complexity of prior devices.

The district court referred to the factual underpinnings of the determination of obviousness as set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. (BNA) 459, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966). Applying these criteria, the court discussed the testimony of Aerosonic's expert witness concerning the prior art. In addition to the '339 patent, the references relied on by Aerosonic were two patents on "telegraph-sounders" that were designed to make noise, a patent on a magnetically operated switch designed to absorb any shock created by contact of its armature and magnetic core, a patent on a relay for telephone lines to control secondary signals, and a patent for an automobile voltage regulator.

The district court concluded that "considered in their entirety, the references discussed by defendants' expert do not, in the court's view, lead one of ordinary [**7] skill in the art to the invention in suit." We agree that the references, alone or in combination, do not make obvious the '114 invention. There is no teaching or suggestion whereby a person of ordinary skill would have been led to select these mechanical and electrical structures and concepts and combine them as did DeMayo in the '114 invention. To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction -- an illogical and inappropriate process by which to determine patentability. *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. (BNA) 303, 312-13 (Fed. Cir. 1983). The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 U.S.P.Q. (BNA) 543, 547 (Fed. Cir. 1985).

The DeMayo '114 device was placed in commercial production by Sensonics. Aerosonic purchased fifty of the Sensonics vibrators from Budd Electronics Corp. An Aerosonic engineer testified that he [**8] was instructed

by Mr. Frank to copy every detail of the Sensonics device, mentioning the number of turns of wire in the electromagnet and the wire thickness, the tension of the spring, the posts supporting the armature, the unitary construction, the adjustable screw, etc. Mr. Frank and other employees of Aerosonic testified that there were no acceptable substitutes in the industry for the DeMayo '114 vibrator design.

Patent invalidity must be proved by clear and convincing evidence. The differences from the prior art that were shown at trial, the inadequacies of prior vibrators including DeMayo's earlier '339 design, and the technologic advantages and commercial success of the '114 invention, well support the district court's conclusion that invalidity based on obviousness had not been proved. The decision that the patent is valid is affirmed.

PATENT ENFORCEABILITY

Aerosonic charged Sensonics with inequitable conduct before the Patent and Trademark Office because Sensonics did not bring to the attention of the patent examiner the DeMayo '339 patent. The district court held that the intent element of inequitable conduct had not been shown, and referred to the evidence presented at [**9] trial of Sensonics' good faith. The court also observed that Aerosonic's own patent counsel did not initially notice the relevance of the '339 patent, and that the '339 patent was not cited by Aerosonic in its reexamination request which was made during the litigation, and for which the litigation was stayed.

The district court found that Mr. DeMayo, who testified at trial, was not aware of a need to direct the examiner to the '339 patent. Mr. DeMayo also testified that he did not believe that the '339 patent was relevant to [*1571] the '114 invention due to the differences and significant drawbacks in the '339 design; this testimony was supported by other evidence of the differences and drawbacks of the '339 and other prior devices.

Aerosonic presses the argument that Sensonics did not seek reexamination of the '114 patent in light of the '339 patent until after expiration of the '114 patent. The '114 patent expired during the litigation. The district court observed that Aerosonic had earlier requested reexamination of the '114 patent, but that Aerosonic did not mention the '339 patent in its reexamination papers. Indeed, Aerosonic's omission of the '339 patent from its reexamination request [**10] weighs heavily against its argument that the '339 patent was material prior art.

The burden of proof of inequitable conduct was upon Aerosonic. The factual predicates of both (1) a withholding of material prior art and (2) the intent thereby to deceive or mislead the patent examiner into

allowing the claims, must be shown by clear and convincing evidence. *Kingsdown Medical Consultants, Ltd. v. Hollister*, 863 F.2d 867, 872, 9 U.S.P.Q.2D (BNA) 1384, 1389 (Fed. Cir. 1988), cert. denied, 490 U.S. 1067, 104 L. Ed. 2d 633, 109 S. Ct. 2068 (1989). There was no evidence of culpable intent. The totality of the evidence, including the evidence of good faith, well supports the district court's finding that intent to deceive or mislead the examiner was not shown.

Absent reversible error in the district court's findings and conclusion, we affirm the decision that there was not inequitable conduct before the patent office and that the '114 patent is enforceable.

WILLFUL INFRINGEMENT

Aerosonic stipulated that it infringed claims 2 and 7. The district court found that Aerosonic also infringed claims 3, 8 and 11. Aerosonic appeals this latter finding, advising that we need not reach claims 3, 8, and 11 should we sustain the validity [**11] of claims 2 or 7. Thus the only infringement issue is Sensonics's cross-appeal of the district court's finding that Aerosonic's infringement was not willful.

Sensonics states that the court clearly erred in failing to find that the infringement was willful, referring to Aerosonic's deliberate and meticulous copying of the Sensonics device, and Aerosonic's delay of eight months before consulting patent counsel after it received written notice of infringement, as evidence that Aerosonic willfully disregarded or did not intend to respect the law. The devices that Aerosonic purchased from Budd Electronics and copied were all labelled with Sensonics' name. Sensonics states that the opinion of counsel that Aerosonic produced at trial was "protective" and was not a complete analysis, and that Aerosonic's continuing infringement after actual notice of Sensonics' patent was with knowledge and disregard of Sensonics' legal rights. Indeed, the opinion of counsel makes no mention of Aerosonic's copying and other objective indicia of unobviousness, although precedent requires that these factors be considered. See *Stratoflex v. Aeroquip Corp.*, 713 F.2d 1530, 1539, 218 U.S.P.Q. (BNA) 871, 879 (Fed. Cir. [**12] 1983) (evidence of objective considerations must always be taken into account).

Although the opinion of Aerosonic's counsel is flawed, the issue of willfulness raises questions of credibility as well as weight, and findings thereon are not readily reversed. See *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 867, 226 U.S.P.Q. (BNA) 402, 412 (Fed. Cir. 1985) (giving due deference to the trier's right to determine credibility and weight). The district court found that Aerosonic timely retained patent counsel and reasonably relied on counsel's opinion. Although it is relevant that the infringement was continued even after

the '114 patent was confirmed on reexamination, this occurred four months before patent expiration, and Sensonics does not argue that this event of itself signals willful infringement. On the whole we do not discern clear error in the district court's findings and conclusion on the issue of willful infringement.

DAMAGES

Sensonics appeals the district court's measure of damages, on the ground that the [*1572] district court incorrectly assessed the number of infringing devices made by Aerosonic.

The criteria for lost profits damages that are summarized in *Panduit Corp. v. [**13] Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 197 U.S.P.Q. (BNA) 726 (6th Cir. 1978), were applied by the district court. The court found that Sensonics had proved (1) demand for the patented product, (2) Sensonics' ability to meet that demand, (3) the absence of acceptable non-infringing substitutes, and (4) the amount of lost profits per unit. The principal issue at trial was not any of these criteria, but the total number of devices that were made by Aerosonic during the period between actual notice of infringement on September 14, 1989 and the expiration of the '114 patent on January 28, 1992.

This issue arose because Aerosonic had apparently destroyed its manufacturing records after this litigation began. No manufacturing records were available for the relevant period except for a handwritten log book of serial numbers that covered the final six months preceding the expiration of the patent. This log commenced with number 21,267 in July 1991, after this suit had been pending for a year. It was the only remaining evidence of the number of devices manufactured. Aerosonic argues that the burden of proof of damages is upon the patentee, and that since the number of devices manufactured [**14] could not be proved, the burden could not be met.

However, if actual damages can not be ascertained with precision because the evidence available from the infringer is inadequate, damages may be estimated on the best available evidence, taking cognizance of the reason for the inadequacy of proof and resolving doubt against the infringer. See *Westinghouse Elec. & Mfg. Co.*, 225 U.S. 604, 620, 56 L. Ed. 1222, 32 S. Ct. 691 (1912) (infringer bears the risk when precise calculation is not possible); *Kori Corp. v. Wilco Marsh Buggies and Draglines, Inc.*, 761 F.2d 649, 655, 225 U.S.P.Q. (BNA) 985, 989 (Fed. Cir.) ("Fundamental principles of justice require us to throw any risk of uncertainty upon the wrongdoer rather than upon the injured party.") (citing *Story Parchment Co. v. Paterson Parchment Co.*, 282 U.S. 555, 563, 75 L. Ed. 544, 51 S. Ct. 248 (1931)), cert. denied, 474 U.S. 902 (1985).

When the calculation of damages is impeded by incomplete records of the infringer, adverse inferences are appropriately drawn. See *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065, 219 U.S.P.Q. (BNA) 670, 675 (Fed. Cir. 1983) (any adverse consequences rest upon the infringer when inability to ascertain lost profits is due to the infringer's failure to keep [**15] accurate or complete records). When manufacturing records were destroyed after the litigation commenced, strong inferences adverse to the infringer may be drawn. *Beatrice Foods Co. v. New England Printing and Lithographing Co.*, 899 F.2d 1171, 1176, 14 U.S.P.Q.2D (BNA) 1020, 1024 (Fed. Cir. 1990).

The district court found that the final six months' log was the only evidence of the number of devices manufactured. The log listed 1,037 vibrators to which serial numbers were given during the final six months of the life of the '114 patent. From this number the district court extrapolated back, assuming an equal rate of production over the previous three years, to a total of 7,347 units manufactured between the date notice of infringement was given to Aerosonic and the date of patent expiration. See *Beatrice Foods*, 899 F.2d at 1176, 14 U.S.P.Q.2D (BNA) at 1024 (damages appropriately measured by reconstruction when infringer had destroyed its invoices). Sensonics states that this extrapolation gives an unrealistically low figure because Aerosonic would reasonably be expected to have cut back on infringing production for the last few months of patent life, especially because this litigation was ongoing. [**16]

Sensonics states that Aerosonic's failure to retain production records during the litigation period requires that strong adverse inferences be drawn. We agree that this circumstance gives rise to a strong inference that the records would have been unfavorable to Aerosonic. *Lam v. Johns-Manville*, 718 F.2d at 1065, 219 U.S.P.Q. (BNA) at 675. Indeed, as the court discussed in *Nation-Wide Check Corp. v. Forest Hills Distribs., Inc.*, 692 F.2d 214, 218 (1st Cir. 1982), it is not necessary to [*1573] establish bad faith in order to draw an adverse inference from "purposeful" action:

The adverse inference is based on two rationales, one evidentiary and one not. The evidentiary rationale is nothing more than the common sense observation that a party who has notice that a document is relevant to litigation and who proceeds to destroy the document is more likely to have been threatened by the document than is a party in the same position who does not destroy the document. . . .

The other rationale for the inference has to do with its prophylactic and punitive effects. Allowing the trier of fact to draw the inference presumably deters parties from destroying relevant evidence before it can [**17] be introduced at trial.

citing 2 Wigmore on Evidence § 291, at 228 (Chadbourn rev. 1979).

Aerosonic had the clear duty of keeping and preserving records of the acts for which infringement had been charged, and it is appropriate that doubt be resolved against Aerosonic. Although Aerosonic's actions warrant adverse inferences, Sensonics does not suggest an alternative to the extrapolation method adopted by the district court. Thus the district court's extrapolation represents the best available reconstruction of the infringing activity, and is sustained.

The district court then reduced the extrapolated production of 7,347 units by 33% "in order to account for any duplication resulting from device repair or inefficiency in production of the vibrators." Sensonics states that this reduction is unsupported by evidence, and contrary to the great weight of the evidence. We must agree. There was no evidence that device repair or production inefficiency was reflected in the log showing the serial number that was applied when the vibrator was ready for shipment or installation. Mr. Frank, who was the chief executive officer of Aerosonic during this period, testified that: "The [**18] serial number is put on the vibrator just before it is shipped, or before we put it into an indicator." On this procedure, any device repair or inefficiency in production would not be reflected in the serial number.

The Aerosonic log that was produced included repairs. It was the only record of repairs that was produced, and showed a repair rate of less than 0.4%, without a change of serial number for the repaired unit. Aerosonic did not establish that 33% or any other number of vibrators bore multiple serial numbers or were given new serial numbers after they were returned for repair. Further, if evidentiary imprecision is due to inadequacy of the infringer's records, uncertainty is resolved against the wrongdoer. *Kori v. Wilco*, 761 F.2d at 655, 225 U.S.P.Q. (BNA) at 989; *Lam v. Johns-Manville*, 718 F.2d at 1065, 219 U.S.P.Q. (BNA) at 675.

Aerosonic states that damages are measured not by the number of devices manufactured but by the number of devices sold before patent expiration, arguing that there is no record evidence of when the devices listed on the serial number log were sold, but that they would have been sold mostly after patent expiration. The statement of law is incorrect. The patent [**19] statute grants the

patentee the right to exclude others from making, using, or selling the patented subject matter. 35 U.S.C. § 271. Any of these activities during the patent term is an infringement of the patent right.

In the absence of any evidence that a significant number of the units to which a serial number was given were not separate manufactures, the district court's reduction of the total of 7,347 is clearly in error, and is reversed. Damages shall be paid on 7,347 units. The district court's decision is modified accordingly.

ENHANCEMENT OF DAMAGES

Sensonics states that the district court abused its discretion in declining to enhance damages in accordance with 35 U.S.C. § 284 ("the court may increase the damages up to three times the amount found or assessed"). The district court's decision with respect to the enhancement of damages will be sustained unless it was based on an incorrect conclusion of law, clearly erroneous findings of fact, or a clear error of judgment. *National Presto Industries, Inc. v. The West Bend Co.*, 76 F.3d 1185, 1193, 37 U.S.P.Q.2D (BNA) 1685, 1691 (Fed. Cir. 1996).

[*1574] Section 284 does not state the circumstances in which damages may be enhanced by the [**20] court. In *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 277, 227 U.S.P.Q. (BNA) 352, 358 (Fed. Cir. 1985) the court explained that "enhancement of damages must be premised on willful infringement or bad faith." See *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 628, 225 U.S.P.Q. (BNA) 634, 644 (Fed. Cir.), cert. dismissed, 474 U.S. 976 (1985) (absent willful infringement, enhanced damages are usually not warranted). As elaborated in *Beatrice Foods Co. v. New England Printing and Lithographing Co.*, 923 F.2d 1576, 1580, 17 U.S.P.Q.2D (BNA) 1553, 1556 (1991), enhanced damages are punitive, not compensatory. Enhancement is not a substitute for perceived inadequacies in the calculation of actual damages, but depends on a showing of willful infringement or other indicium of bad faith warranting punitive damages.

The district court declined to enhance damages. Since we have affirmed the finding that the infringement was not willful, we conclude that the district court acted within its discretion in declining to enhance damages pursuant to § 284.

PREJUDGMENT INTEREST

The district court denied prejudgment interest, referring to the difficulty of its calculation. It was established [**21] in *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 217 U.S.P.Q. (BNA) 1185, 76 L. Ed. 2d 211, 103 S. Ct. 2058 (1983) that prejudgment

interest is the rule, not the exception. The Supreme Court explained that the denial of prejudgment interest simply creates an incentive to prolong litigation, and that prejudgment interest in patent cases is withheld only under exceptional circumstances. 461 U.S. at 656-57, 217 U.S.P.Q. (BNA) at 1189. In *Lummus Industries, Inc. v. D.M. & E. Corp.*, 862 F.2d 267, 274-75, 8 U.S.P.Q.2D (BNA) 1983, 1988 (Fed. Cir. 1988) the court held that "to deny prejudgment interest based on calculation difficulties alone would be error."

We have been directed to no circumstance that would make it unfair or inappropriate to award prejudgment interest in this case. As stated in *General Motors v. Devex*, an award of prejudgment interest serves to make the patent owner whole, for damages properly include the foregone use of money of which the patentee was wrongly deprived. 461 U.S. at 655-56, 217 U.S.P.Q. (BNA) 1188. *Sensonics* has included in its appellate brief a reasonable methodology for calculation of prejudgment interest. *Aerosonic* has not challenged the rate or the arithmetic. The denial of prejudgment interest is reversed. [**22] On remand prejudgment interest, calculated in accordance with the *Sensonics* method, shall be awarded.

ATTORNEY FEES

The district court did not separate, in its analysis, the criteria for enhancement of damages and for the award of attorney fees. They are not necessarily the same, although the contributing factors often overlap.

The award of attorney fees requires a threshold determination that this is an "exceptional case." 35 U.S.C. § 285. Bad faith and willful infringement are not the only criteria whereby a case may be deemed to be "exceptional," although when either is present the requirement is more readily met. Litigation misconduct and unprofessional behavior are relevant to the award of attorney fees, and may suffice to make a case exceptional under § 285. *Spectra-Physics Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1537, 3 U.S.P.Q.2D (BNA) 1737, 1746 (Fed. Cir.), cert. denied, 484 U.S. 954, 98 L. Ed. 2d 372, 108 S. Ct. 346 (1987). See *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1580, 230 U.S.P.Q. (BNA) 81, 91 (Fed. Cir. 1986) (bad faith in pretrial and trial stages, by counsel or party, may render the case exceptional under § 285).

The district court had declined to enhance damages, on the ground that [**23] the infringement was not willful. However, the district court did not discuss whether there were actions of bad faith sufficient to meet the criterion of "exceptional case" and to warrant the award of attorney fees. *Sensonics* points to *Aerosonic's* pre-litigation false statement that it was not manufacturing the device but was simply reselling it,

citing Mr. Frank's [*1575] letter of September 21, 1989 to *Sensonics's* counsel. n2 *Sensonics* states that this led it to sue *Budd Electronics Corporation* in the Eastern District of Pennsylvania. At trial Mr. Frank admitted that he ordered the copying and manufacture of the *Sensonics* device.

n2 Mr. Frank, then president, chief executive officer, and chief of engineering at *Aerosonic*, wrote: "*Aerosonic Corporation* purchased the vibrators from another company, and if you have some legal action, it would be against them." [signed] "Herbert J. Frank, President".

At his deposition *Aerosonic* employee Ronald Miller was testifying to similar effect when *Aerosonic's* attorney McDonald [**24] passed him a note stating "DID NOT COPY" (plaintiff's exhibit 52). These procedures, of which *Sensonics* complains forcefully, demean the litigation process.

Sensonics also points to *Aerosonic's* motion to the district court filed October 22, 1991, opposing *Sensonics* motion of October 15, 1991 to lift the stay for reexamination, *Aerosonic* assuring the court that the reexamination certificate had not issued, when it had issued on September 24, 1991. Before this aspect was resolved another year passed, during which the patent expired.

Combined with these actions is the matter of manufacturing records. *Aerosonic* employees admitted that prior serial number logs existed as late as eighteen months after the suit was filed, although no witness could tell what became of these logs. *Aerosonic* employees testified that they did not know how many devices were manufactured, even for purposes of warranty control. Employees in responsible management positions testified that they did not have any records or any idea of how many devices were manufactured. The Supervisor of the Electronics Department, who personally kept the final six-months' log of serial numbers, testified that a previous log [**25] must have existed when she started the remaining log with serial number 21,267, but that it no longer existed or could be produced. As we have discussed, there is an uncompromising duty to preserve relevant records, and particularly after litigation has begun.

It is the judicial duty to refuse to condone behavior that exceeds reasonable litigation tactics. The district court made no findings concerning whether *Aerosonic's* actions were taken in good faith. Indeed, the court may consider the litigation actions of both sides in connection with § 285. See *Beatrice Foods*, 923 F.2d at 1580, 17

U.S.P.Q.2D (BNA) at 1556 (requiring findings of fact on the issue of bad faith). We remand for determination of whether there was bad faith or vexatious behavior or other grounds for deeming this case exceptional in terms of 35 U.S.C. § 285. If so, the district court may determine whether the award of attorney fees is warranted.

APPEAL OF HERBERT J. FRANK

Mr. Frank was the founder, owner, president, chief executive officer, and chief of engineering of Aerosonic. In 1990 he became chairman, his son-in-law became president, and Mr. Frank continued as chief executive officer for an additional two years. [**26] The district court found Mr. Frank personally liable for inducement to infringe the '114 patent. Mr. Frank appeals.

The tort of "inducement" under 35 U.S.C. § 271(b), when applied to invoke personal liability, is premised on a concept of tortfeasance whereby persons in authority and control may in appropriate circumstances be deemed liable for wrongdoing, when inducing direct infringement by another. See *Water Technologies Corp. v. Calco, Ltd*, 850 F.2d 660, 7 U.S.P.Q.2D (BNA) 1097 (Fed. Cir.) (finding liability for inducement based on specific circumstances of personal control of Calco's manufacture of the infringing products), cert. denied, 488 U.S. 968, 102 L. Ed. 2d 534, 109 S. Ct. 498 (1988); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1578-79, 1 U.S.P.Q.2D (BNA) 1081, 1090 (Fed. Cir. 1986) (corporate officers who actively aid and

abet their corporation's infringement may be personally liable for inducing infringement).

Mr. Frank testified that he did not have the authority to control or discontinue production of the device after he became aware of Sensonics' patent rights or as the [*1576] litigation progressed. The district court did not believe this statement. We do not discern clear error in this credibility [**27] determination, for the weight of evidence was strongly contrary to this testimony. In the absence of reversible error, the district court's ruling that Mr. Frank is liable for inducement to infringe, and jointly and severally liable for the judgment, is affirmed.

Summary

The district court's rulings of validity, enforceability, and infringement of the '114 patent are affirmed. Damages shall be measured on the basis of 7,347 infringing units, without enhancement. The denial of prejudgment interest is reversed. On remand the damages award and interest shall be recalculated, and the district court shall make findings on the issue of whether this is an exceptional case for the purposes of 35 U.S.C. § 285.

On Mr. Frank's individual appeal, the district court's judgment is affirmed.

Costs to Sensonics.

AFFIRMED IN PART, MODIFIED AND
REVERSED IN PART, AND REMANDED

**ACS HOSPITAL SYSTEMS, INC., Appellant/Cross-Appellee, v. MONTEFIORE
HOSPITAL and WELLS NATIONAL SERVICES CORPORATION,
Appellees/Cross-Appellants**

Appeal Nos. 83-1121, 83-1132

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

732 F.2d 1572; 1984 U.S. App. LEXIS 15027; 221 U.S.P.Q. (BNA) 929

April 27, 1984

PRIOR HISTORY: [1]**

Appealed from: U.S. District Court for the Western District of Pennsylvania.

DISPOSITION:

Affirmed in Part and Reversed in Part.

LexisNexis(R) Headnotes

COUNSEL:

Frank J. Benasutti, of Philadelphia, Pennsylvania, argued for Appellant.

David J. Cushing, of Washington, District of Columbia, argued for Appellees. With him on the brief was Darryl Mexic.

JUDGES:

Miller and Smith, Circuit Judges, and Re Judge. *

* The Honorable Edward D. Re. Chief Judge, United States Court of International Trade, sitting by designation.

OPINIONBY:

SMITH

OPINION:

[*1573] SMITH, Circuit Judge.

In this patent case, ACS Hospital Systems, Inc. (ACS), appeals from a judgment of the U.S. District Court for the Western District of Pennsylvania, 564 F. Supp. 330, [*1574] holding U.S. patent No. 4,183,057, issued to Sonnenberg (the Sonnenberg patent), invalid as obvious under 35 U.S.C. § 103 (1976) and not infringed. Montefiore Hospital and Wells National Services Corp. (Wells) cross-appeal from the district court's denial of their motion for attorney fees. The judgment is reversed with respect to invalidity and affirmed with respect to noninfringement. With respect to Wells' cross-appeal from the denial of attorney fees, the [**2] judgment is affirmed.

Background

ACS's Sonnenberg patent claims a rental television system comprising a key operated actuating switch, an override switch, and a signal light to indicate that the override switch has been actuated. When the key switch is in the "on" position, the television operates normally. For rental use, the key switch is placed in the "off" position by a key operator. In order to rent the television, the viewer depresses the override switch which enables the television to operate normally without the necessity of turning on the key operated switch. When the override switch has been activated the indicator signal is illuminated, signaling that the television has been rented. Claim 1 is representative:

A television system constructed for rental use, the television system comprising:
actuating means including a key operated switch switchable between an off position

for preventing normal operation of the television and an on position for enabling the television to be operated; override switching means capable of being switched from a normal position to an actuated position for overriding said key operated switch when in its off position and [**3] enabling the television to be operated; and said override switching means when switched in to [sic] its actuated position remains in said position until said key operated switch is switched into its on position; and indicating means for providing an indicating signal when said override switching means has been switched into its actuated position.

Validity

The trial court held the claims of the Sonnenberg patent invalid under section 103. While the trial court's opinion deals predominantly with infringement, the court purported to apply the standards articulated in *Graham v. John Deere Co.* n1 in determining the issue of validity. In concluding that the Sonnenberg patent is invalid under section 103, the district court relied on override switches generally and ACS's "COMPU-TEL" fully automated television rental system as prior art.

n1 *Graham v. John Deere Co.*, 383 U.S. 1, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966).

The court below stated that "the overriding of switches by providing [**4] an alternative path for current to actuate an appliance is a commonly practiced technique well known in the art prior to Sonnenberg's patent." It held that his claim 1 is therefore invalid as obvious. The trial judge adopted Wells' expert's description of ACS's COMPU-TEL system and held the Sonnenberg patent invalid as an attempt by ACS to "monopolize *all* systems of enabling a hospital patient to view television * * without the aid of an attendant." (Emphasis in original.) He commented that "the statutory presumption [of validity] of 35 U.S.C. 282 is entirely annihilated by the indisputable facts in the record."

Presumption of Validity

As an initial matter, we hold that the trial court's treatment of the presumption of validity is incorrect as a matter of law. The presumption is *never* annihilated, destroyed, or even weakened, regardless of [*1575] what facts are of record. n2 Rather, it is a clear statutory

procedural device which assigns to the party asserting invalidity the burden of proving invalidity. n3

A patent shall be presumed valid. * *
The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such [**5] invalidity. n4

The burden of persuasion is, and remains always, on the party asserting invalidity. n5 In the present case this error is not harmless. The district court's holding of invalidity has been shown, on the entire record, to have been reached on the basis of *both* clearly erroneous findings of fact and misapplication of the law. n6

n2 *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1534, 218 U.S.P.Q. (BNA) 871, 875-76 (Fed. Cir. 1983).

n3 *Id.*

n4 35 U.S.C. § 282 (1976).

n5 *Stevenson v. U.S. Int'l Trade Comm'n*, 67 CCPA 109, 612 F.2d 546, 551, 204 U.S.P.Q. (BNA) 276, 281 (1979); *Solder Removal Co. v. U.S. Int'l Trade Comm'n*, 65 CCPA 120, 582 F.2d 628, 632-33, 199 U.S.P.Q. (BNA) 129, 132-33 (CCPA 1978). See also *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 U.S.P.Q. (BNA) 193 (Fed. Cir. 1983); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 220 U.S.P.Q. (BNA) 97 (Fed. Cir. 1983); *Stratoflex*, 713 F.2d at 1534, 218 U.S.P.Q. (BNA) at 875-76; *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 773-74, 218 U.S.P.Q. (BNA) 781, 790 (Fed. Cir. 1983). [**6]

n6 Cf. *Medtronic*, 721 F.2d at 1566, 220 U.S.P.Q. (BNA) at 99 (errors in decisional approach considered harmless).

Section 103

This court has in recent months issued a number of opinions addressing the analysis of obviousness under section 103 n7 and those opinions provide a comprehensive guide to analysis. We hold that the trial court's analysis of obviousness is inadequate under *Graham* n8 to sustain a holding of invalidity under section 103. However, the trial court's opinion contains sufficient findings of fact, supported in the record, to

enable us to review the conclusion below that the Sonnenberg patent is invalid.

n7 *In re Sernaker*, 702 F.2d 989, 217 U.S.P.Q. (BNA) 1 (Fed. Cir. 1983); *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 217 U.S.P.Q. (BNA) 193 (Fed. Cir. 1983); *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 217 U.S.P.Q. (BNA) 1281 (Fed. Cir. 1983); *Chore-Time Equip., Inc. v. Cumberland Corp.*, 713 F.2d 774, 218 U.S.P.Q. (BNA) 673 (Fed. Cir. 1983); *Schenck, A.G. v. Nortron Corp.*, 713 F.2d 782, 218 U.S.P.Q. (BNA) 698 (Fed. Cir. 1983); *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 218 U.S.P.Q. (BNA) 865 (Fed. Cir. 1983); *Stratoflex*, 713 F.2d 1530, 218 U.S.P.Q. (BNA) 871. [**7]

n8 *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. (BNA) at 467, provides, in pertinent part:

"* * * [Section] 103 * * * lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. * * *"

Scope and Content of the Prior Art.

In determining the scope and content of the prior art, the trial court found that override switches generally were well known in the art. It also found that ACS's COMPU-TEL system was within the prior art under section 102(g). The district court did [**8] not in its opinion rely on any other prior art reference in determining whether the claimed invention would have been obvious under section 103.

Five U.S. patents n9 are cited in the Sonnenberg patent as prior art. Further, the parties refer to the "Western New York Hospital" rental television system as

prior art. While the trial judge made no mention in his opinion of these additional [*1576] references, on the basis of the record before us, they each constitute prior art relative to the Sonnenberg patent. We hold that the trial court's limited assessment of the prior art was clearly erroneous in that the court below failed to find that these additional references are within the scope and content of the prior art. These errors, however, have not been shown to have influenced the trial court's judgment in this case and, accordingly, we consider them harmless.

n9 Norris, U.S. patent No. 2,856,474; Townsend, U.S. patent No. 3,188,384; Sargent, U.S. patent No. 3,335,421; Daniel, U.S. patent No. 3,631,444; and Kosco, U.S. patent No. 3,886,302.

[**9]

Differences.

With respect to the differences between the claimed subject matter and the prior art, the district court gave claim 1 of the Sonnenberg patent an extremely broad construction. It adopted the opinion of Wells' expert that the COMPU-TEL system contains every feature of claim 1. Hence, the court below found no significant differences between the claimed subject matter and the prior art. We hold that finding to be clearly erroneous. In addition, that finding reflects an erroneous construction of the claims.

The trial court in its discussion of obviousness, rather than ascertaining the differences between the claimed subject matter and the prior art, focused on the differences between the Wells and the ACS systems. In so doing, it adopted Wells' expert's explanation of the differences between claim 1 and the Wells system -- differences relating to literal infringement, not validity. We conclude that the trial court erred in adopting Wells' expert's interpretation of claim 1.

Differences between the prior art and the claimed invention are apparent from the record. First, while override switches are used in a wide variety of applications, the examples of [**10] override switches cited by the district court are not relevant to the claimed subject matter as a whole -- television rental systems. The district court made no attempt in its opinion to identify the differences between the override switching examples that it cited and the claimed subject matter.

Second, the record discloses that COMPU-TEL is a fully automated television rental system whereas the claimed invention involves human monitoring and control. While COMPU-TEL and the claimed invention

both exhibit certain switching elements, the functions of the switching elements in the two systems are different. The fully automated operation of the COMPU-TEL system does not involve overriding a locked key switch. The patient switch in the COMPU-TEL system functions to actuate the television as well as to initiate billing. The override switching means claimed in the Sonnenberg patent, on the other hand, functions to provide an alternative current path to the locked key switch and to actuate the indicator light.

Third, the prior art of record that the court did not discuss also differs significantly from the claimed subject matter. The five patent references cited in the Sonnenberg [**11] patent involve a variety of lock, metering, and control systems. None of them, however, employs an override switching mechanism to overcome a key operated actuating switch. The Western New York Hospital system involves a three position key switch. Yet, that system differs from the claimed subject matter in that it too does not employ override switching means.

Hence, we hold the trial court's assessment, that there are no differences between the claimed subject matter and the prior art, was clearly erroneous.

Level of Ordinary Skill and Secondary Considerations.

Additionally, the court below made no express finding with respect to the level of ordinary skill in the art. The trial court's analysis, however, clearly indicates that the level of skill was considered to be quite low. We interpret the court's findings as fixing the level of ordinary skill in the art as that of a layman. That finding has not [*1577] been shown to be clearly erroneous. The court made no findings with respect to secondary considerations.

Claim Construction.

As noted above, the trial court's opinion reflects an extremely broad construction of the claims. Contrary to the [**12] district court's construction of the claims, the Sonnenberg patent does not claim "all systems of enabling a hospital patient to view television normally under his own power without the aid of an attendant." (Emphasis in original.) The court ignored express claim limitations governing the function of the switching means.

Claims are to be read and construed in light of the specification and the prosecution history of the patent. n10 Further, claims should be so construed, if possible, as to sustain their validity. n11 Applying these principles, the claims of the Sonnenberg patent should be given a far more limited construction than that given by the district court in holding the claims invalid. The claims are limited to a system in which override

switching means function to override a key switch when in its "off" position, enabling the television to operate normally. The Sonnenberg patent does not claim "all" hospital rental systems capable of operation without an attendant. Claim construction is a question of law. n12 We hold that the trial court's construction of the claims is incorrect as a matter of law.

n10 *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1570-71, 219 U.S.P.Q. (BNA) 1137, 1140-41 (Fed. Cir. 1983); *Autogiro Co. v. United States*, 181 Ct. Cl. 55, 384 F.2d 391, 397-99, 155 U.S.P.Q. (BNA) 697, 702-04 (1967). [**13]

n11 *Carman Indus., Inc. v. Wahl*, 724 F.2d 932, 937 n.5, 220 U.S.P.Q. (BNA) 481, 485 n.5 (Fed. Cir. 1983); *Klein v. Russell*, 86 U.S. (19 Wall.) 433, 466, 22 L. Ed. 116 (1874); *Turrill v. Michigan S. & N.I. R.R.*, 68 U.S. (1 Wall.) 491, 510, 17 L. Ed. 668 (1864).

n12 *Autogiro*, 384 F.2d at 397-99, 155 U.S.P.Q. (BNA) at 702-04; *LaSalle v. Carlton's Laydown Serv., Inc.*, 680 F.2d 432, 216 U.S.P.Q. (BNA) 276 (5th Cir. 1982); *Studiengesellschaft Kohle mb H v. Eastman Kodak Co.*, 616 F.2d 1315, 206 U.S.P.Q. (BNA) 577 (5th Cir.), cert. denied, 449 U.S. 1014, 66 L. Ed. 2d 473, 101 S. Ct. 573, 208 U.S.P.Q. (BNA) 88 (1980).

Obviousness.

Turning now to the determination of obviousness under section 103, we conclude that none of the references, either alone or in combination, would have disclosed or suggested to one of ordinary skill in the art the use of override switching means in a television rental system. The trial court's heavy reliance on the widespread use of override switches appears to be no more than hindsight reconstruction of the claimed invention. The [**14] court below identified no source, other than the Sonnenberg patent itself, for the suggestion to use override switching means in a television rental system.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. n13 Under section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so. n14 The prior art of record fails to provide any such suggestion or incentive.

Accordingly, we hold that the court below erred as a matter of law in concluding that the claimed invention would have been obvious to one of ordinary skill in the art under section 103.

n13 *Orthopedic Equip. Co.*, 702 F.2d at 1012, 217 U.S.P.Q. (BNA) at 199; cf. *In re Samour*, 571 F.2d 559, 563, 197 U.S.P.Q. (BNA) 1, 4 (CCPA 1978) (noting the rule in the § 103 context and declining to extend that rule to § 102(b) rejections); *Corometrics Medical Sys., Inc. v. Berkeley Bio-Engineering, Inc.*, 193 U.S.P.Q. (BNA) 467, 475 (N.D. Cal. 1977).

n14 *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. (BNA) 143 (CCPA 1976); *In re Regel*, 526 F.2d 1399, 188 U.S.P.Q. (BNA) 136 (CCPA 1975); *In re Avery*, 518 F.2d 1228, 186 U.S.P.Q. (BNA) 161 (CCPA 1975); *In re Imperato*, 486 F.2d 585, 179 U.S.P.Q. (BNA) 730 (CCPA 1973); *In re Andre*, 52 CCPA 1019, 341 F.2d 304, 144 U.S.P.Q. (BNA) 497 (CCPA 1965).

[**15]

[*1578] *Infringement*

The trial court found that the Wells system does not infringe the claimed invention, either literally or under the doctrine of equivalents. Once again adopting the testimony of Wells' expert, the court below found that "the Wells system does not contain the element of overriding a locked switch." The district court also found differences between the ACS system and the Wells device with respect to the mechanism and circuitry of the actuating switch as well as with respect to the indicator light.

These latter findings, however, will not support a finding of no infringement. The claims of the Sonnenberg patent are not limited to a specific switching mechanism or to specific indicator light circuitry. The district court appears to have compared the Wells system with ACS's commercial product, rather than with the claims of the Sonnenberg patent. Infringement is determined on the basis of the claims, not on the basis of a comparison with the patentee's commercial embodiment of the claimed invention.

The district court's failure to supply more comprehensive findings of fact compounds the difficulty of appellate review, particularly in view of the [*16] complexity of the technical subject matter of this appeal. Findings of fact are to be construed liberally in support of a judgment. Confined to the trial court's limited findings, we are forced to draw from the facts found those inferences that are necessary to support the

ultimate finding that the Sonnenberg patent is not infringed by Wells. n15

n15 5A J. MOORE, J. LUCAS, MOORE'S FEDERAL PRACTICE para. 52.06[1] (2d ed. 1984).

In this endeavor we are not ourselves finding those facts which the trial court failed to set out for us. As an appellate court, we lack the power to perform that exercise. Where the trial court fails to make findings, the judgment will normally be vacated and the action remanded for appropriate findings to be made. n16 Where a full understanding may be had without the aid of separate findings, however, we recognize a narrow exception to that general rule. n17

n16 *Pullman-Standard v. Swint*, 456 U.S. 273, 292 n.22, 72 L. Ed. 2d 66, 102 S. Ct. 1781 (1982); 5A MOORE'S FEDERAL PRACTICE para. 52.06[2]. [*17]

n17 See 5A MOORE'S FEDERAL PRACTICE para. 52.06[2] n.4 and cases cited therein.

The ultimate finding of fact in a case, whether initially by the trial court, or as affirmed on appeal, rests on the same underpinnings, i.e., the necessary subsidiary facts, supported by evidence of record, that lead to that ultimate finding. Where the district court has not misapplied the controlling legal standards in its evaluation of the evidence, its ultimate finding as well as the subsidiary findings upon which the ultimate finding necessarily depends, is subject to review on appeal under the clearly erroneous standard of Fed. R. Civ. P. 52(a). n18 We examine the record in order to review the trial court's judgment, and the findings it made or necessarily had to have made to support that judgment and, thus, to conclude the controversy at this stage without unnecessary further expenditure of judicial resources, if possible.

n18 Cf. *Pullman-Standard*, 456 U.S. 273, 72 L. Ed. 2d 66, 102 S. Ct. 1781.

[**18]

The Sonnenberg Claims.

The Sonnenberg patent claims a rental television system having key operated actuating means capable of being overridden by an override switching means. An indicating means signals that the override switching means has been actuated. Once overridden, the switches and the indicator light remain in their overridden positions until the key operated switch is switched on, resetting the override switching and indicating means.

The Accused Infringing Device.

The Wells device also contains each of the three physical elements of claim 1 of [*1579] the Sonnenberg patent: (1) a key operated actuating switch; (2) a remote control actuating switch; and (3) an indicator light. The district court, however, found that the Wells device does not contain the claimed limitation of overriding a locked switch -- a difference in function.

The Wells device is a modified version of a standard hospital/hotel/motel television receiver. The keylock in the Wells system actuates 5 switches: S1XA; S1XB; S1B; S1C; and S1D [Fig. 1].

[SEE ILLUSTRATION IN ORIGINAL]

In the Wells device, the jumper wires, provided by the manufacturer on switches S1B and [**19] S1C, are not removed. [Fig. 2.]

[SEE ILLUSTRATION IN ORIGINAL]

Switches S1B and S1C are shorted out by those jumper wires, rendering those switches electrically inoperable.

Additionally, switch S1D [Fig. 1] is "replaced" by relay RL-2 [Fig. 3] of the Wells remote control circuit.

[*1580] [SEE ILLUSTRATION IN ORIGINAL]

Relay RL-2 is connected in parallel with switch S1D and one of the leads to switch S1D is cut between switch S1D and the connection of the lead to relay RL-2 [Fig. 3]. Thus, the circuit through switch S1D is broken, rendering that switch electrically inoperable.

Unlike switch S1D which it replaces, relay RL-2 is not controlled by the key switch. Rather, switch S1 [Fig. 3], located on the remote control unit, operates relay RL-2 in the Wells device. When S1 is not depressed, relay RL-2 remains normally closed. When switch S1 is depressed, the coil in relay RL-2 is energized causing relay RL-2 to open. Similarly, switch S1D, which relay RL-2 replaces, was normally closed when the television was not rented and was opened by turning the key switch to rent the television.

Switches S1B, S1C, and S1D, therefore, are disabled in the [**20] Wells device. The key switch operates only two switches -- S1XA and S1XB [Fig. 1] -- which control the delivery of power to the television receiver.

When these switches are closed [positions 2 and 3] [Table 1], power is delivered to the tuner; when these switches are open [position 1] [Table 1], the circuit is broken and no power reaches the tuner.

[*1581] [SEE ILLUSTRATION IN ORIGINAL]

As manufactured, when the key switch of a standard receiver is in position 2 [Table 1], switch S1D is open and the television operates normally. Position 2 functions as an "on" setting in the standard receiver. In the Wells device, however, switch S1D [Table 1] has been disconnected and it has been replaced by relay RL-2. Relay RL-2 cannot be opened by manipulation of the key switch, as was switch S1D. Thus, the receiver cannot be actuated merely by turning the key switch to position 2 in the Wells device. n19 Switch S1 opens relay RL-2. The Wells receiver can be made fully operable only by depressing switch S1 [Fig. 3] while master on-off switches S1XA and S1XB are closed -- position 2 or 3 [Table 1].

n19 It appears that had RL-2 and S1D been wired in series, instead of in parallel with S1D disabled, the Wells device would exhibit the claimed "on" function.

[**21]

When the key switch is in position 1, power is interrupted and depressing actuating switch S1 will not actuate the receiver. The Wells key switch performs the same function in position 2 as in position 3. In both of those positions, while power is supplied to the tuner, the actuating switch S1 must be depressed in order to actuate the television. Thus, switch S1 does not override the key switch of the Wells device. n20 Switch S1 and the key switch are electrically independent in the Wells device [Fig. 4].

n20 Our assessment of the operation of the Wells device is based on the trial court's findings and on the documentary and testimonial evidence of record. It appears that only switches S1XA and S1XB are controlled by the key switch. Thus, our analysis supports the trial judge's implication that there is no functional difference between positions 2 and 3 of the key switch. The above analysis assumes that the key switch does not operate some third circuit that is actuated in either position 2 or position 3, but not both. We are aware of no evidence that such a third circuit fulfills the role of the key switch and is in turn overridden by switch S1.

[**22]

[*1582] [SEE ILLUSTRATION IN ORIGINAL]

In summary, the Wells device exhibits three modes of operation: (1) off -- locked out (switches S1XA and S1XB open); (2) rentable -- key position 2 or 3 and S1 not actuated (switches S1XA and S1XB closed and switch S1 open); and (3) rented -- key position 2 or 3 and S1 actuated (switches S1XA and S1XB closed and switch S1 closed). Normal operation of the Wells device can be achieved *only* by depressing S1 *while* the power is switched on (key switch position 2 or 3). The invention claimed in the Sonnenberg patent, on the other hand, also exhibits three modes of operation: (1) "off" -- rentable (override switch not actuated); (2) "on" -- rented (override switch actuated); and (3) "on" -- key operation (key switch turned on and override switch not actuated).

On the basis of our examination of the record we infer that the district court necessarily found the following relative to the Wells device: (1) switches S1B, S1C, and S1D are disabled; (2) the key switch controls only switches S1XA and S1XB -- the master on-off switch; and (3) the receiver can be actuated only by depressing S1 while the key switch is in either position 2 [**23] or 3 (so that switches S1XA and S1XB are closed).

Literal Infringement.

These implied findings lead inexorably to the district court's express finding that the Wells device lacks the claimed limitation of overriding a locked key switch. Further, these findings indicate that the Wells device does not exhibit the claimed "on" key switch position.

Both the "on" and "off" positions recited in claim 1 correspond to the "on" positions [positions 2 and 3] of the key switch in the Wells device. The Wells device cannot be operated normally through the key switch alone, as is required by claim 1. Rather, switch S1 must be depressed in conjunction with power being supplied to the receiver through the key switch. Hence, on the basis of the record before us, we conclude that the district court's finding, that Wells does not literally infringe the claims of the Sonnenberg patent, is not clearly erroneous.

Doctrine of Equivalents.

While the district court purported to apply the standard articulated in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, n21 it entered no findings on the issue of equivalence: whether the Wells device performs substantially [**24] the same function as the claimed invention in substantially the same way to obtain substantially the same result. n22 Yet, the court clearly

implied that Wells does not infringe the Sonnenberg patent under the doctrine of equivalents and entered judgment to that effect.

n21 *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607-09, 94 L. Ed. 1097, 70 S. Ct. 854 (1950).

n22 *Id.* at 608; *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42, 74 L. Ed. 147, 50 S. Ct. 9 (1929).

We infer that the district court necessarily found that the Wells device, lacking the claimed function of overriding a locked key switch, does not function in substantially the same way as the claimed invention. [*1583] That inference is supported by the record. Accordingly, we conclude that the district court's finding, that the Wells device does not infringe the Sonnenberg patent under the doctrine of equivalents, is not clearly erroneous.

Hence, we affirm in part the judgment of the district court [**25] insofar as it relates to the finding that the Wells device does not infringe the claims of the Sonnenberg patent, either literally or under the doctrine of equivalents.

Attorney Fees

The trial judge found that this is not an exceptional case and denied Wells' request for attorney fees. In order to prevail on its cross-appeal, Wells must establish that the trial judge abused his discretion in this regard and not merely, as Wells' attorneys contend, that the trial judge committed clear error. Wells has not demonstrated the requisite abuse of discretion, although it attempts to do so by demonstrating alleged fraudulent conduct by ACS before the Patent and Trademark Office. Fraud has not been shown. Nor have other facts been established that would demonstrate that the trial judge abused his discretion in finding that this case is not exceptional. Thus, we affirm the district court's denial of Wells' motion for attorney fees.

Conclusion

In summary, we hold that the district court committed both clear errors of fact and errors of law with respect to its resolution of the validity issue. The district court's conclusion that the Sonnenberg patent is invalid under section [**26] 103 is incorrect as a matter of law. We conclude that the trial court's finding, that Wells does not infringe the claims of the Sonnenberg patent, either literally or under the doctrine of equivalents, is not clearly erroneous. Additionally, we hold that the trial

732 F.2d 1572, *; 1984 U.S. App. LEXIS 15027, **;
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judge did not abuse his discretion in denying Wells'
motion for attorney fees.

AFFIRMED IN PART AND REVERSED IN
PART.